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31st CONGRESS, 2d Session. [SENATE.] Ex. Doc. No. 28.

COAST SURVEY OFFICE.

LETTER

FROM

THE SECRETARY OF THE TREASURY,

COMMUNICATING

A report of the computation of tables, to be used with the hydrometer recently adopted for use in the United States custom-houses, made under the superintendence of Professor A. D. Bache, by Professor R. S. McCulloh.

FEBRUARY 10, 1851.

Referred to the Committee on Finance.

FEBRUARY 11, 1851.

Committee discharged.

FEBRUARY 14, 1851.

Ordered to be printed; and that 3,000 additional copies be printed—1,500 of which for the use of the Senate, and the remainder for the use of the Treasury Department.

TREASURY DEPARTMENT,
February 7, 1851.

SIR: I have the honor to transmit herewith to the Senate a letter from Professor A. B. Bache, superintendent of weights and measures, communicating a report of the computation of a manual of tables to be used with the hydrometers recently adopted for use by the revenue officers of the United States. The computations for the manual were made under the direction of Professor R. S. McCulloh, of the College of New Jersey, at Princeton, late melter and refiner of the mint of the United States, by Messrs. Woods Baker and J. B. Reynolds.

This work was undertaken and completed in compliance with a request of this department, and for the purpose of enabling the Secretary of the Treasury, in the exercise of authority conferred upon him by an act of Congress, approved January 12, 1825, to adopt and institute a more accurate hydrometer than that actually in use in the custom-houses.

Very respectfully, your obedient servant,

TH. CORWIN,
Secretary of the Treasury.

Hon. WM. R. KING,
President of the Senate.

395.a.

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Letter of Professor A. D. Bache, superintendent of weights and measures, transmitting a report, by Professor R. S. McCulloh, of the computation of a manual of tables to be used with Tralles' hydrometer by the United States revenue officers.

OFFICE OF WEIGHTS AND MEASURES,
February 7, 1851.

SIR: I have the honor to submit herewith a report of Professor R. S. McCulloh on the computation of a set of tables to be used with the hydrometer of Tralles in the custom houses of the United States.

In two previous reports (Sen. Doc. No. 50, 30th Congress, 1st session) Professor McCulloh presented a full discussion of the theory of the hydrometer, described the method of its manufacture, the principal ones now or formerly in use in our own or foreign countries, and, in immediate connexion with this subject, gave a valuable and interesting discussion of the temperature of the maximum density of water, so important in establishing standard weights and measures. He also gave an elaborate account of researches in relation to the specific gravities of alcoholic liquids made by authority of European governments or by private persons, verifying those researches by new ones of his own. In these reports he showed that the system of proving used in the custom-houses of the United States was very imperfect, wanting in uniformity, accuracy, and simplicity, and open to the practice of fraud; and he recommended the adoption of a more simple and perfect system by the department.

The proposed system is embodied in the following recommendations, which were given in my letter accompanying the last report of Professor McCulloh on this subject:

1. That the strength of liquors should not be referred to the arbitrary degrees of an artificial system, as those of Dycas's hydrometer, but be expressed in per cents. of alcohol contained by volume.

2. That no reference be made in terms of "proof," as "first proof," "second proof," &c., which are from legal enactment, and not commercial use, in ascertaining or describing the strengths of alcoholic liquors; but that such description be made in per cent. by volume of contained alcohol.

3. That all gaugings or measurements of alcoholic liquids be referred to the standard temperature of 60° of Fahrenheit's thermometer.

4. That, in stating the per cent. by volume of pure alcohol contained in a liquid, it be reduced to its equivalent at the same standard temperature of 60° Fahr.

5. That the centesimal hydrometer be adopted in determining the strength of liquids; and provisionally, until a better instrument is furnished, the centesimal alcoholometer of Tralles be used, with a suitable manual of tables to accompany the instrument.

Authority was accordingly given to Professor McCulloh to procure the hydrometers recommended, and to compute the tables to be used with them.

In the report herewith submitted, he gives a detailed account of the execution of this laborious work, of which I present a brief abstract.

In the introduction he explains the organization of the work and the precautions taken to insure correctness in the results, alludes to an attempt to make absolute alcohol, shows the advantage of adopting the

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arbitrary standard of Tralles (specific gravity 0.7939) for absolute alcohol—water at the maximum density being assumed as unity—and explains the superiority of glass instruments over those of metal.

Chapter I is devoted to the description of the formulæ and data employed in computing the tables of the manual. In his second report on hydrometers, (Sen. Doc. No. 50, 30th Congress, 1st sess, p. 412,) Professor McCulloh remarked that, for the instrument of Tralles, his tables might be interpolated for every single per cent.; but, upon further consideration, he came to the conclusion that it would be better to base the new tables directly upon the researches made by Messrs. Gilpin and Blagden for the British government, published in the Philosophical Transactions, and which had been employed by Tralles. They were accordingly adopted, and the per cents. by weight were converted into corresponding per cents. by volume; the densities of the mixtures of alcohol and water were reduced to the scale of the maximum density of water, and corrected for error of mixture, weighing, &c., by the method of curves and least squares, and by means of second differences were extended for higher and lower temperatures than those given by Gilpin and Blagden. The densities corresponding to the per cents. between 1 and 92 being thus given, the table was extended by computation to 100 per cent. The discussion of the new results forms not the least interesting part of the report, as it shows their accuracy, compared with the scattered data of the best known experiments made with highly concentrated alcohol. From these densities the corresponding volumes of the mixtures of alcohol and water were found, and are given in the manual of tables herewith submitted. The true densities were then converted into apparent densities by employing General Roy's coefficient of the dilatation of glass, and the table of true per cents. of the manual was obtained. Combining these tables, the table of commercial values resulted.

Chapter II gives an account of experiments made by Woods Baker, esq., with different alcoholic liquors, to find the variation of density produced by essential oils, or other flavoring and coloring matter, contained in them. These experiments prove conclusively that all kinds of spirits may be regarded as simple mixtures of alcohol and water, and establish the accuracy of the tables for ascertaining the proportion of alcohol and water, which are based upon the hypothesis that the density of a spirituous liquor depends only upon the water and alcohol it contains, or that the effects of any impurities are inappreciable.

Chapter III, and last, reports the verification and description of the instruments made by J. G. Greiner, jr., for the United States government. The instrument adopted by the government is termed by Greiner a *thermo-alcoholometer*, and is an ingenious combination of a Fahrenheit's thermometer with Tralles' hydrometer. A sketch of it is presented in *plate I*, together with its accompanying glass cylinder for containing the liquid to be tried; *a* is the bulb of the thermometer, the graduated scale of which extends from *b* to *c*, and which is enclosed in the hydrometer. The scale of the hydrometer, giving the indicated per cents., is seen between *d* and *e*. The liquor to be proved is placed in the cylinder *h*, having a brass pedestal *g* to give it stability; and the spirit proof or hydrometer being immersed in the liquor, the temperature and indicated per cent. are read off and referred to the proper table of the manual, for the true per cent. by volume at the standard temperature of 60° Fahr.

In justice to both Professor McCulloh and myself, it should be stated that the series of researches upon hydrometers, of which this is a final report, was undertaken originally in 1844, and has been performed by us for the Treasury Department without compensation. And to Messrs. Baker and Reynolds much credit is due for the very laborious and exact calculations and experiments performed and discussed by them.

Very respectfully submitted by

A. D. BACHE,
Superintendent of Weights and Measures.

HON. THOMAS CORWIN,
Secretary of the Treasury.

TABLE OF CONTENTS.

INTRODUCTION.

Page.

Authority to compute tables - - - - - - 8
Engagement of assistants; organization of the work - - - 8
Mode of computation, and care taken to avoid errors - - 8
Printing of the tables in form of a manual - - - - 8
Remarks on the experiments made by Mr. Baker upon alcoholic liquors - - - - - - - - - 8
Attempt to make absolute alcohol by Mr. Weightman - - 9
Advantage of adopting the arbitrary standard of Tralles - - 9
Importation and verification of thermo-alcoholometers, made by J. G. Greiner, of Berlin - - - - - - - - 9
Remarks on the superiority of glass instruments over those of metal 9
Concluding remarks - - - - - - - 10

CHAPTER I.

Description of the methods and data employed for the computation of the tables.

§ 1. Specific gravities of mixtures of alcohol and water, found by Gilpin and Blagden, and extracted from the Philosophical Transactions - - - - - - - 10
Table I, containing the densities of Gilpin and Blagden for spirits of different strengths and at various temperatures - 10
§ 2. Formula A, used for converting the per cents. by weight into corresponding per cents. by volume - - - - - 10
Table II, showing the per cents. by volume of absolute alcohol contained in Gilpin and Blagden's mixtures - - - 11
§ 3. Reduction to the scale of the maximum density of water - 11
Correction of densities by the method of curves and least squares, and extension of temperatures - - - - 11
Attempt to correct for errors of temperature; singular points in the curves - - - - - - - 11
Table III, showing the densities corrected for errors of temperature and reduced to the standard of Tralles - - 11
Table IV. Density of water at different tempratures, from 20° to 100° Fahr. - - - - - - - 11
§ 4. Comparison of the results given by various interpolating formulæ 11
Table V, showing the comparative values obtained by Lagrange's logarithmic formula and those by simple proportion 11
Formula B, used for interpolating densities corresponding to even per cents., and for each degree of temperature - - 11
Table VI. An auxiliary table, used in computing the value of *y* in formula B - - - - - - 11

Page.

Table VII. An auxiliary table, used for the same purpose - 11
Formula C, used for computing the volumes corresponding to the densities - - - - - - - 12
Table VIII, showing the true densities and volumes of alcohol of every degree of strength, from 1 to 100 per cent. inclusive, and at every temperature, from 20° to 100° Fahr. - - 12
§ 5. Extension of per cents. from 93 to 100 per cent. - - 12
Formula D, used for the extension; data upon which the extension is founded - - - - - - 12
Table IX, used with the formula for interpolating between 93 and 100 per cent. - - - - - 12
Table X. Computed densities of alcohol of strengths between 93 and 100 per cent. - - - - - 12
§ 6. Comparison of the data of various observers with the computed results - - - - - - - 12
Table XI. Muncké's densities of 100 per cent. alcohol compared with those given in table VIII - - - 12
Table XII. Gay Lussac's densities compared with those of same table - - - - - - 12
Table XIII. Tralles' data compared - - - 13
Tables XIV to XVII. Delezennes' data compared - - 13
Tables XVIII to XXI. McCulloh's data compared - - 13
Exact verification of table VIII - - - - - 13
Table XXII, showing differences between the interpolated and observed densities for the same per cents. and temperatures - 13
§ 7. The table of volumes of the manual obtained - - - 13
§ 8. Formula E, used for reducing the true to apparent densities - 13
Why General Roy's coefficient of dilatation of glass was employed - - - - - - - 13
Table XXIII, used for correcting the density, for expansion and contraction of the instrument, for every degree above and below 60° Fahr. - - - - - - 13
Computation of apparent from true per cents. - - - 13
Table XXIV, showing the apparent densities and apparent per cents. corresponding to the true per cents. - - - 14
Table of true per cents. of the manual obtained - - 14
§ 9. Table of commercial values of the manual obtained - - 14

CHAPTER II.

Experiments made with different alcoholic liquors, to find the variation of density produced by essential oils, or other flavoring and coloring matter, contained therein.

§ 10. Experiments with oil of juniper - - - - 14
§ 11. Experiments with oil of rye - - - - - 15
§ 12. Experiments with Jamaica spirits - - - - 16
§ 13. Experiments with New England rum - - - - 17
§ 14. Experiments with dark Cognac brandy - - - 17
§ 15. Experiments with pale Cognac brandy - - - 18
§ 16. Indicated strengths of the above liquors - - - 19

CHAPTER III.

Verification and description of instruments made by J. G. Greiner, jr., for the United States government.

		Page.
§ 17.	How the verification was performed - - - -	19
§ 18.	The thermo-alcoholometer, why preferred - - -	20
	Instruments ought not to be purchased by the revenue officers	20
§ 19.	Workmanship of these instruments very superior - -	20
§ 20.	Descriptions of standards belonging to the United States Treasury Department - - - - - -	20

INTRODUCTION.

COLLEGE OF NEW JERSEY,
Princeton, June 20, 1850.

DEAR SIR: By a letter from you, dated July 18, 1848, I received authority to import hydrometers; also to compute tables, to be used therewith by the revenue officers of the United States, for determining the quantity of alcohol contained in any spirituous liquor; to employ such assistants as might be found necessary; and to cause said tables, when prepared, to be printed in the form of a convenient manual.

We had previously conferred together, and devised a plan for the expeditious and economical performance of the numerous arithmetical and other requisite calculations. In accordance with which plan, immediately after the receipt of your letter, I proceeded with the execution of the work, by engaging the services of Messrs. J. B. Reynolds and Woods Baker as chief assistants or computers, and Messrs. Vogdes, Weygandt, McMullen, and McNeill, as sub-computers. The labor of applying the various algebraic and logarithmic formulæ to the proper numerical data, in order to prepare them for the arithmetical calculations of the sub-computers, of verifying these calculations by comparing them with each other, and of correcting all errors accidentally committed by the sub-computers, was devolved upon and furnished full employment for the chief assistants. The daily supervision and general direction of the work, the selection of formulæ and arrangement of convenient forms for their use, the verification of the work of the chief assistants, and occasional aid to them, constituted the task reserved for and performed by myself.

It should here be particularly remarked, that all the computations were verified with the greatest care; every calculation was performed simultaneously and independently by each assistant, if algebraical; and by two of the sub-assistants, if arithmetical. Whenever, upon comparison of the duplicate results, any discrepancy between them was noticed, it was investigated until the error was found and corrected. Thus, the whole work was doubly performed, and every result made to depend upon two independent and accordant determinations.

The whole number of calculations required for the manual amounted, for each assistant and his two sub-assistants, to nearly 50,000, or in all to about 100,000. This will permit you to form an idea of the assiduity and efficiency with which they labored, if you will recall to mind the fact that the computations were commenced about the first of September and completed in January; which gives an average of nearly 600 calculations per day. Too much credit cannot be given to the assistants, and especially to Messrs. Baker and Reynolds, for the industry and ability they displayed in the accurate execution of their laborious work.

After the tables were finished, 500 copies of the manual which they constituted were promptly printed on superior paper, and bound in suitable style and form. All the assistants were then discontinued except Mr. Baker, who was retained to correct proof-sheets of the manual, and to investigate the effects produced by essential oils, &c., which are described in chapter II, below, as well as to assist me in the verifications of the hydrometers.

The series of results obtained by Mr. Baker, and embodied in chapter II, are not only interesting but important. They show that, *with the ex-*

ception of Jamaica spirits, the densities of all the alcoholic liquors of commerce are not appreciably affected by the flavoring substances they contain; or, in other words, that, for alcoholometric purposes, we may consider spirituous liquors to be simple mixtures of alcohol and water. This fact, though generally asserted and admitted, appears to have depended heretofore upon a few unpublished and isolated results, or to have been conceded to authority rather than established by thorough investigations. It, therefore, demanded experimental confirmation, especially as it is material to the accuracy of the alcoholometric tables, which are based upon the hypothesis that the density of a spirituous liquor depends only upon the water and alcohol it contains, or that the effects of any impurities are inappreciable.

At my request, Mr. Weightman, of the firm of Powers & Weightman, accomplished manufacturing chemists of Philadelphia, undertook to prepare for me alcohol of the greatest possible degree of concentration. I regret to say, however, that he did not succeed in making it of the specific gravity 0.7938 at 60° Fahr., water being unity, the result obtained by Mr. Drinkwater. (See page 488, Sen. Doc. No. 50, 30th Cong., 1st session.) It was my purpose to have endeavored, by careful experiments, to determine the specific gravity of alcohol concentrated to a maximum, and by chemical reactions and analyses ascertained to be as pure as can be made; but for this investigation my official duties at the mint did not allow me sufficient time. The subject, however, is one of scientific importance only; for the question, what constitutes the true density of any substance, is one which can only be approximately determined; and it is, therefore, more exact to assume an arbitrary standard, such as Tralles' alcohol, of the density 0.7939, at 60° Fahr., than to employ a natural one, which might be in error, however carefully sought. If ever the true density of pure alcohol should be more exactly determined, it cannot differ from that of Tralles by an amount which can be practically appreciated for commercial purposes; and, for scientific ends, it will be easy, in any instance, to apply a small and suitable correction.

The hydrometer to be used with the manual of tables is the thermo-alcoholometer, (a combination of the alcoholometer of Tralles with a Fahrenheit's thermometer,) made by J. G. Greiner, jr., of Berlin—a specimen of which is herewith sent to you. One hundred of these instruments have been imported from Germany. They are of exquisite workmanship in every respect; for the careful and thorough verification to which I have subjected them, (see chapter III of this report,) has shown them to be as exact as they are beautiful. These instruments are now ready for delivery to the custom-house officers, together with the manuals, which I hold subject to your order.

The opinion which I formerly expressed, that glass is the only proper material for the manufacture of hydrometers, I may here repeat; the difference being that they are broken by blows which indent and destroy the accuracy of those of metal. The latter corrode, and cannot be kept clean; they are also far more expensive. On the score of economy alone, the government should employ glass instruments. The hydrometers imported from Berlin cost six dollars each; and for Dycas's hydrometer, made by Fisher, the price has been, I believe, about twenty five dollars. For the same instrument made in Liverpool by the patentee, the cost in this country has been fifty dollars. A single careless blow will destroy

either of these instruments; but the loss by accidental injury done to Dycas's hydrometers is, in consequence of their relative cost, four or eight times that sustained by breaking those made by Greiner. The use of *indented* metallic hydrometers should be prohibited by law: they give false indications, and may, therefore, be fraudulently employed.

This extended series of scientific researches, which commenced in June, 1844, is now complete. It has been performed with conscientious and unremitting regard to accuracy, and with the earnest desire and purpose to do everything thoroughly and well. If it has been protracted, the delay was inevitable, since, in the midst of current official labors which demanded my close personal attention, I had little leisure, while connected with the United States mint, to devote to any other matters; and for extra services, rendered to the government without compensation, though willingly, some indulgence of time may certainly be reasonably claimed. Should those services prove to have been well performed and useful, I shall obtain the only reward I have desired or could legally receive.

CHAPTER I.

A description of the methods and data employed for the computation of the manual of tables to be used by inspectors of spirits.

§ 1. The first step taken in preparing the tables of the manual was to extract from the 84th volume, pages 280—382, of the Philosophical Transactions for the year 1794, the experimental data of Messrs. Gilpin and Blagden, to wit: the specific gravities of their mixtures of alcohol and water; which mixtures were composed of ordinary alcohol and water in such proportions as to form a series commencing with pure water, and progressing with constant differences of five parts by weight. Thus:

Water.		Alcohol.
100	+	0
100	+	5
100	+	10
&c.,	&c.,	to
100	+	100
95	+	100
90	+	100
&c.,	&c.,	to
0	+	100

The densities corresponding to these mixtures were determined experimentally by Gilpin and Blagden for every fifth degree of temperature between 30° and 80° Fahr., inclusive, and are embodied in table I.

§ 2. By means of the formula $\frac{v}{V} = \frac{S}{W+S} \cdot \frac{\triangle}{d}$ .....(A) the per cents. by weight were converted into corresponding per cents. by volume; in which expression, $\frac{v}{V}$ represents the required per cent. by volume, S the alcohol, W + S the mixture of alcohol and water, $\triangle$ the

corresponding density of the mixture, and d the specific gravity, 0.825, at 60° Fahr. of the alcohol used by Gilpin and Blagden, water being unity at that temperature.

The results thus obtained were multiplied by the coefficient 0.926, to reduce them to the standard adopted by Tralles; according to which, Gilpin's alcohol of 0.825 contains 92.6 per cent., and the specific gravity of absolute alcohol is 0.7939, at 60° Fahr., the maximum density of water being unity. These results differed inconsiderably from those obtained by reducing the per cents. by volume calculated by Gilpin and Blagden to the same standard, as will be observed by examination of table II.

§ 3. Having thus found the per cents. by volume, according to the standard of Tralles, the next step was to reduce the corresponding densities at the different temperatures to the scale of the maximum density of water assumed as unity. These densities were then corrected for errors of mixture, weighing, &c., by the method of curves combined with that of least squares, resulting in very slight changes in the fifth place of decimals, in no instance varying more than 0.00004 from the original number. (See curve diagrams Nos. II to V, annexed.) Using the corrected second differences found by the curves, the densities were extended from 30° to 20°, and from 80° to 100° Fahr.

We also attempted to correct for errors of temperature, (see curve diagram No. VI;) but such similarity appeared in the fluctuations of the curves, that it was deemed advisable not to make any alteration in this respect, particularly as the final results would not be materially affected. It is probable that the analogy observed in the curves arises from neglect in the experimenters to make barometric observations when taking the specific gravities, or from some other constant source of error.

The densities of water given by Gilpin and Blagden for temperatures between 30° and 80° Fahr. were likewise reduced, corrected for second differences, and extended from 30° to 20° by adopting Despretz's data, and from 80° to 100° by means of second differences. (See table IV.)

A series of uneven or fractional per cents. from 0 to 92.6, and their corresponding densities for every fifth degree of temperature from 20° to 100° Fahr., were thus obtained. (See table III.)

§ 4. From the fundamental data contained in the last two tables we then obtained by interpolation every intermediate integral per cent. corresponding to the density at each degree of temperature between the limits of 20° and 100° Fahr. For this purpose various interpolating formulas were tried, and it was found that the results obtained by carrying the approximation to second differences were nearly identical to the fifth place of decimals with those given by simple proportion, as shown in table V.

We therefore computed by proportion all the densities corresponding to even per cents. between 1 and 92, inclusive, for each degree of temperature between 20° and 100°, using for this purpose the formula—

$$y = y' + (y'' - y') \left(\frac{x - x'}{x'' - x'} \right) \ldots\ldots\ldots\ldots\ldots\ldots (B)$$

the familiar equation of a straight line passing through the points x', y' and x'', y'', so arranged as to give the value of any density y, when any per cent. x, intermediate to x', x'', is given. The calculations of the last term of the second member were performed by logarithms, to facilitate which operation the subsidiary tables VI and VII were constructed and employed.

From the densities the corresponding volumes, relatively to those occupied at the temperature of 60° Fahr., were then found by the formula—

$$v = v' \frac{d'}{d}; \ldots\ldots\ldots\ldots\ldots\ldots (C)$$

in which v is the volume at 60°, d the density at 60°, v' the volume at any given temperature, and d' the density at the same temperature.

Table VIII gives the results of the calculations just described, together with the densities and volumes from 92 to 100 per cent.; for the explanation of which, see § 5.

§ 5. Table VIII comprises densities at every degree of temperature from 20° to 100°, inclusive, and for every per cent. of alcohol from 1 to 100. The per cents., from 1 to 92, at the various temperatures, were computed from the data of Gilpin and Blagden, as already explained. Those from 92 to 100 were obtained by means of Biot's interpolating formula—

$$y = a + bx + cx^2 \ldots\ldots\ldots\ldots\ldots (D)$$

in which y is the required density corresponding to any given temperature x; and a, b, c are coefficients computed from the densities for every fifth degree of temperature, and for liquors of the respective strengths of 87, 93, and 99 per cent.

The densities of 87 per cent. we obtained from the data of Gilpin and Blagden. Those of 93 per cent. were found by reduction from the densities of 92.6 given in table III, above.

For the extension from 93 to 100 per cent. we have the experimental results of Gay Lussac, Delezennes, Tralles, Muncké, and myself, as set forth in chapters I and II of my fourth report, (Sen. Doc. No. 50, 30th Congress, 1st session.) Those of other observers were not employed, for reasons assigned in that report. The results of the observations being reduced to a common scale, the density 0.79846 of 99 per cent. alcohol, at the temperature of 60° Fahr., as determined by myself, was found to be identical with that obtained by Tralles for the same per cent. and temperature. This density we therefore assumed for that temperature. In order to obtain the densities of 99 per cent. alcohol at the different temperatures, we found that the mean difference of the densities corresponding to 55° and 60°, for all per cents. from 87 to 93, was 0.00236; which difference decreased by the constant second difference 0.00002 for every 5° below 60°, and increased by the same above 60°. As this law was true for per cents. between 87 and 93, it was provisionally assumed to be true for those from 93 to 100 per cent., and accordingly the densities for 99 per cent. in the table IX were computed.

From the numbers of this table we obtained by formula D the interpolated results of table X.

It remained to verify the interpolated densities of table X, by comparisons with the observations of Gay Lussac, Delezennes, Tralles, Muncké, and myself.

§ 6. From the data given on page 477 of Sen. Doc. No. 50, 30th Cong., 1st session, we deduced the comparison given in table XI between the observed results of Muncké for 100 per cent. alcohol and those of table VIII obtained by interpolation.

Similarly, the researches of M. Gay Lussac (see Sen. Doc. No. 50, 30th Cong., 1st session, page 481) furnish the basis of table XII.

Between the data of Tralles (Sen. Doc. No. 50, page 456) and those of

table VIII, we have for 99 per cent. alcohol the comparison given in table XIII.

Likewise the experiments of Delezennes (see page 479 of the same Sen. Doc.) give the results of tables XIV, XV, XVI, XVII.

From my own experiments (see chapter II of Sen. Doc. No. 50, 30th Cong., 1st session) we obtain the tables XVIII, XIX, XX, and XXI.

It should be stated that all the densities of tables XI to XXI (those of tables XI and XII having been computed from the observed volumes of Munckė and Gay Lussac—see former report, pages 477 and 481) have been referred to the common unit of the maximum density of water, and that the per cents. have been reduced to the scale of 0.7939 at 60° Fahr., assumed by Tralles and adopted by myself, as the specific gravity of absolute or 100 per cent. alcohol.

It is evident from the above comparative tables that the interpolated results of table VIII indicate the law of the densities of alcohol from 92 to 100 per cent. with a degree of accuracy sufficient for all practical and scientific purposes. Indeed, they may justly be considered the mean expression of the latest and most exact experimental data—the differences being both positive and negative, and in every instance very small, as exhibited in table XXII.

It may be observed that the greatest difference between the densities of table VIII and the experimental data of tables XI to XXI, which amounts to 0.3 per cent. nearly, occurs only in the very high temperatures, or in those near the freezing point of water. For instance, in table XI, the densities of Munckė below 90° differ from those of table VIII less than 0.00013, while between 90° and 100° the difference increases to 0.00033. Also, in table XIII, the density of Tralles for 99° varies from that of table VIII by 0.00111, but at other temperatures only by 0.00015. The difference between the densities of Delezennes' 99 per cent. alcohol and those of table VIII, (see table XIV,) at the temperatures of 30°, 32°, and 35°, amounts to 0.00152; at the other temperatures it does not exceed 0.00070. The same may be remarked of the greatest differences of the other observations. Hence, at ordinary atmospheric temperatures, the accuracy of table VIII is greatest and exceedingly close.

§ 7. Having constructed the table of true densities and corresponding volumes for every per cent. from 1 to 100, and for every fifth degree of temperature from 20° to 100°, those for the intermediate temperatures were interpolated by simple proportion. The volumes thus obtained constitute one of the tables of the manual.

§ 8. From the table of true densities, one of the apparent densities was then computed by means of the formula—

$$\triangle' = \triangle - \triangle kt, \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{(E)}$$

employing for k the coefficient of cubic dilatation of glass, the value 0.0000129 found by General Roy, which was used by Gilpin and Blagden in making their reductions from apparent to true densities. This coefficient was adopted because, by proceeding as just stated, we recovered their original apparent densities. Table XXIII contains the coefficient for the correction of the density for expansion and contraction of the glass instrument for every temperature above and below 60° Fahr.

From an auxiliary table of densities at 60°, interpolated for tenths of a per cent., which is not given here by reason of its great length and its derivative nature, the indicated or apparent per cents. were taken for every

fifth degree of temperature; the apparent specific gravities for each true per cent. being used as arguments. Table XXIV contains the apparent densities and per cents. thus found.

The apparent per cents. being fractional, and the corresponding true per cents. integral, they were reversed by proportion, and interpolated for all intermediate temperatures, in order to obtain the table of true per cents. of the manual.

§ 9. Finally, the table of commercial values of the manual was computed by multiplying the data of the table of true per cents. by the corresponding numbers in the table of volumes.

CHAPTER II.

Experiments made with different alcoholic liquors to find the variation produced by essential oils, or other flavoring and coloring matter, contained in them.

EXPERIMENTS WITH OIL OF JUNIPER.

§ 10. A series of mixtures having been made of 99.5 per cent. alcohol and oil of juniper in the several proportions of 1.0, 0.5, and 0.25 per cent. of the oil, their specific gravities, taken by weighing, were found to be as follows:

Proportion of oil of juniper.	Temp. Fahrenheit.	Specific gravity.	Indicated per cent.
100 per cent.....	70°	0.86684	
1.0 "	"	.79218	99.33
0.5 "	"	.79185	99.40
0.25 "	"	.79164	99.45
Alcohol of 99.5 per cent.....	"	.79142	99.50
Ditto, pure	"	.78917	100.00

The above mixtures were made in the following manner: On the large balance of Duffey, in a bell-glass, six ounces of the 99.5 per cent. alcohol were carefully weighed, to which was added by means of a pipette 0.06 oz. of juniper oil, producing a mixture containing 1 per cent. of the oil. The other mixtures were made similarly, by adding to the 99.5 per cent. alcohol, severally, 0.03 oz. and 0.015 oz.; thus furnishing mixtures containing, respectively, $\frac{1}{2}$ and $\frac{1}{4}$ of a per cent. of the oil of juniper.

Having obtained the comparative results embodied in the preceding table, another series of mixtures was made, which were composed of 50 per cent. of absolute alcohol and of juniper oil in the several proportions 0.5, 0.25, and 0.12 per cent. They were made by adding to portions of the previous mixtures, containing 1.0, 0.5, and 0.25 per cent. of the oil, equal volumes of pure distilled water.

The transparency of the mixtures was impaired by the addition of the

water. The one containing 0.5 per cent. of the oil of juniper, combined with 50 per cent. alcohol, became milky white; that of 0.25 per cent. was opulescent, and the 0.12 per cent. one faintly tinged. With this series, the following results were obtained with a specific gravity bottle:

Mixture.	Temp. Fahrenheit.	Specific gravity.	Indicated per cent.
0.5 per cent. oil of juniper.....	74°	0.92819	49.73
0.25 " "	"	.92765	50.00
0.12 " "	"	.92765	50.00
Alcohol of 50 per cent.....	"	.92765	50.00

The preceding table shows that the specific gravity of gin, which usually contains about 50 per cent. of alcohol, is not in the least affected by the small quantity of oil of juniper combined with it.

EXPERIMENTS WITH OIL OF RYE.

§ 11. A series of mixtures of the same 99.5 per cent. alcohol with oil of rye was made, in the same manner and proportions as those with oil of juniper. These mixtures gave the following results:

Mixture.	Temp. Fahrenheit.	Specific gravity.	Indicated per cent.
Pure oil of rye.....	70°	0.91882	
1 per cent. ditto.....	"	.79272	99.21
0.5 " "	"	.79207	99.36
0.25 " "	"	.79142	99.50
0.12 " "	"	.79142	99.50
Alcohol of 99.5 per cent.....	"	.79142	99.50
Ditto, pure.....	"	.78917	100.00

This series, diluted with pure distilled water, produced other mixtures like those of the oil of Juniper; from which the following data were obtained:

Mixtures.	Temp. Fahrenheit.	Specific gravity.	Indicated per cent.
0.5 per cent. oil of rye.....	79°	0.92620	49.64
0.25 " "	"	.92587	49.81
0.12 " "	"	.92564	49.92
Alcohol of 50 per cent.....	"	.92549	50.00

For the above mixtures, the laboratory notes made at the time give "milky white," "fainter white," "still fainter," as the degrees of coloration. The disagreeable taste and odor of the oil of rye could be perceived even in the mixture containing 0.12 per cent. of the oil.

The following check results were given by an alcoholometer with an enclosed scale of correction for temperature:

Mixture.	Correction temp.	Indication.	Per cent.
Alcohol of 99.5 per cent.....	2°.3	100.60	99.07
1 per cent. oil rye.....	2°.2	100.25	98.78
½ " "	2°.3	100.50	98.97
¼ " "	2°.4	100.50	98.90
⅛ " "	2°.3	100.60	99.07
1 " oil juniper.....	2°.4	100.40	98.80
½ " "	2°.4	100.50	98.90
¼ " "	2°.3	100.50	98.97

EXPERIMENTS WITH JAMAICA SPIRITS.

§ 12. Evaporated 6.5 oz. of Jamaica spirits nearly to dryness in a capsule, by direct application of the flame of a spirit lamp, and finished the operation with a water bath. Added pure alcohol to the residue, for the purpose of abstracting the water which remained in combination, keeping it in a pasty condition. Obtained 0.65 per cent. of residue. It had the dark color and the odor of molasses, but an astringent taste somewhat like wild-cherry bark.

In order to discover what influence this residue had upon the specific gravity of alcohol, two equal portions of alcohol of the same strength were taken, weighing 6.5 ounces each; in one of these the residue was dissolved. Then, with a thermo-alcoholometer of Greiner, their strengths were taken. To find what difference might exist between them at a lower proportional per cent., equal volumes of diluted alcohol were added to each. The following are the results; A corresponding in strength to No. 1, B to No. 2, &c.:

Residue mixture.	Temp. Fahr.	Indicated per cent.	True per cent.	Alcoholic mixture.	Temp. Fahr.	Indicated per cent.	True per cent.
No. 1.....	74°	61.00	58.41	A	74°	62.50	60.00
2.....	78°	49.50	46.00	B	78°	50.50	47.08
3.....	78°	44.50	40.93	C	78°	45.50	41.96
4.....	78°	39.00	35.35	D	78°	39.50	35.88
5.....	78°	33.50	29.87	E	78°	34.00	30.37

From the above results the following table has been arranged, showing to what extent the residue usually contained in Jamaica spirits diminishes its apparent "commercial value:"

Experiment.	Per cent. of alcoholic mixture.	Per cent. of residue mixture.	Difference.
No. 1	60.00	58.41	1.59
2	47.08	46.00	1.08
3	41.96	40.93	1.03
4	35.88	35.35	0.53
5	30.37	29.87	0.50

We may therefore estimate that, for per cents. from 30 to 60, a correction of 0.5 to 1.5 per cent. must be added to the "true per cent." found for Jamaica spirits, in order to obtain its true alcoholic strength. Ordinarily, there is about 50 per cent. of absolute alcohol in Jamaica spirits.

EXPERIMENTS WITH NEW ENGLAND RUM.

§ 13. Treated 10 oz. New England rum in the same manner as the Jamaica spirits, and found a residue differing from that of the latter very considerably, both in appearance and flavor. The residue from New England rum was light-colored, like an evaporated solution of sugar, and had the flavor of caramel. It amounted to only 0.10 per cent. A solution of it, compared with alcohol of the same strength, gave results differing so slightly as to be unworthy of record in this report.

The solutions of the residues from the spirits and rum were a little darker than the liquors from which they were obtained.

EXPERIMENTS WITH DARK COGNAC BRANDY.

§ 14. Evaporated 10 oz. of dark Cognac brandy to dryness, and found 0.6 per cent. of residue of a dark molasses-color and an astringent taste. Dissolved it in 1 oz. of alcohol of the strength of 62.07 per cent. Operating in the same manner as with the Jamaica spirits, the following results were obtained:

Residue mixture.	Temp. Fahr.	Indication.	True per cent.	Alcoholic mixture.	Temp. Fahr.	Indication.	True per cent.
No. 1	74°	68.50	66.00	A	74.5	69.50	66.95
2	74°	63.00	60.44	B	76.5	65.00	62.07
3	79°	55.00	51.44	C	79.0	55.50	51.95
4	80°	47.50	43.64	D	80.0	48.00	44.15
5	81°	39.00	34.82	E	81.0	39.00	34.82

These data furnish the following comparative table:

Experiment.	Per cent. of alcoholic mixture.	Per cent. of residue mixture.	Difference.
No. 1.....	66.95	66.00	0.95
2.....	62.07	60.44	1.63
3.....	51.95	51.44	0.51
4.....	44.15	43.64	0.51
5.....	34.82	34.82	0.00

The results just given appear somewhat anomalous, but they were obtained from careful observations. Similar anomalies were likewise observed in pale Cognac brandy.

EXPERIMENTS WITH PALE COGNAC BRANDY.

§ 15. From 10 oz. pale Cognac brandy obtained 0.3 per cent. of residue of a dark molasses-color and an astringent taste. Treated like that from dark Cognac brandy, it yielded the following results:

Residue mixture.	Temp. Fahr.	Indication.	True per cent.	Alcoholic mixture.	Temp. Fahr.	Indication.	True per cent.
No. 1.....	76°.0	67.00	64.17	A	77°.0	67.50	64.51
2.....	76°.0	59.00	56.06	B	76°.5	59.50	56.47
3.....	76°.5	52.00	48.86	C	78°.0	53.00	49.60
4.....	83°.0	45.00	40.57	D	82°.5	44.50	40.14
5.....	82°.0	37.50	33.10	E	82°.0	37.50	33.10

From the above table we deduce the following comparison:

Experiment.	Per cent. of alcoholic mixt.	Per cent. of residue mixt.	Difference.
No. 1.....	64.51	64.17	0.34
2.....	56.47	56.06	0.41
3.....	49.60	48.86	0.74
4.....	40.14	40.57	—0.43
5.....	33.10	33.10	0.00

It is probable that these singular results are owing to our not being able to observe accurately small fractions of temperature and indications.

This would undoubtedly have some influence in this instance, where the differences are comparatively small.

§ 16. The commercial liquors used in these experiments were procured of a very respectable wine merchant of this city, so that they may be relied on as genuine and good; and the following table gives their strengths ascertained by Greiner's thermo-alcoholometer, and corrected by means of the tables of the manual:

Kind of liquor.	Temp. Fahr.	Indication.	True per cent.
Holland gin	68°.5	51.5	49.80
New England rum	68°.0	51.0	49.44
Jamaica spirits	67°.5	54.0	52.50
Pale Cognac brandy	74°.0	60.0	57.41
Dark Cognac brandy	75°.0	65.0	62.32

CHAPTER III.

Verification and description of instruments, made by J. G. Greiner, jr., for the United States government.

§ 17. The instruments to which reference is here made consist of two standard alcoholometers of Tralles, with accompanying standard Fahrenheit's thermometers; two separate standard thermometers, and one hundred thermo alcoholometers. Their verification naturally divided itself into two parts: one designed to test the exactness of the standard instruments respectively; the other to ascertain the accordance or discrepancy of the thermo-alcoholometers with the aforesaid standards.

The verification of the thermo-alcoholometers was performed by comparing their indications, when immersed in various alcoholic mixtures, and at various temperatures, with those given by the standards for the same mixtures and temperatures. And, to eliminate any errors of said standard instruments, as well as to connect the whole closely with the experimental researches upon which the tables of the manual have been based, the alcoholic mixtures employed for this purpose were those made synthetically, and used, in the year 1848, by me for the determination of the specific gravities of spirituous liquors, and of which I have given a full account in a former report. (See tables XXXIII and XXXIV, pages 508 and 511 of Sen. Doc. No. 50, 1st session 30th Congress.)

The verification of the standard hydrometers was made by comparing their indications, at various temperatures, with those which, according to the manual of tables, should have been given by the aforesaid standard mixtures. This was done with all possible care and accuracy, and by experiments more varied and numerous than for the thermo-alcoholometers.

The correctness of the thermometers was established by observing them in melting ice, as well as in water at its maximum density, at the mean temperature of 60° Fahr., and at other ordinary degrees. The boiling

points of two of them, of which the scales were sufficiently extended, were likewise verified experimentally by immersion in steam. Also two had formerly been subjected to careful, though partial, verification, as reported in page 516 of the aforesaid published Senate document.

To enumerate the details of the experiments just described would be only to present an array of identical numerical results which could add nothing of interest or importance to this succinct, though complete, statement of facts; and I have therefore deemed their omission expedient and proper.

§ 18. The term *thermo-alcoholometer* is the name given by J. G. Greiner, jr., to his ingenious combination of the thermometer with the alcoholometer of Tralles. It is the instrument adopted for the revenue of the United States, in preference to two separate instruments, over which it possesses decided advantages. It costs less; it is more compact; and, as it is more convenient to use one instrument than two, so there is also less liability to accident or error. Moreover, it is necessary that the thermometers used by the officers of the United States revenue should be accurate, and it has therefore appeared advisable to place it out of their power to substitute for instruments furnished and authenticated by the government, others which might be of inferior and erroneous workmanship—purchased, perhaps, at the nearest or most convenient shop—to replace those which may have been accidentally destroyed.

An examination made by me in the year 1845 of the hydrometers in use at the various custom-houses (see page 531, Sen. Doc. No. 50, 1st sess. 30th Cong.) shows that not only inaccurate but illegal instruments have been purchased and used by the revenue officers, in consequence of their having been allowed to supply themselves with such as their convenience and facilities permitted; and it therefore fully establishes the expediency of adopting instruments which cannot be readily imitated in the shops of inferior workmen, or used when by injury rendered inaccurate.

§ 19. Of all the above-mentioned instruments, obtained from and made by J. G. Greiner, jr., the workmanship is of the most superior order—they are, indeed, models of skill and elegance; and, apart from the confirmatory results obtained by the experimental verification to which I have subjected them, they might be considered as entitled to confidence by reason of the evident perfection of their execution.

§ 20. The following descriptions of the standard alcoholometers and thermometers I have thought it well to annex, so that the instruments may hereafter be readily identified by any one as those used by me, and upon which the alcoholometric system of the United States revenue depends:

Standard alcoholometer No. 1, belonging to the Treasury Department of the United States, and made by J. G. Greiner, jr., of Berlin, in June, 1838, as recorded on its paper scale; which also bears the stamp of the Prussian government, authenticating it as having been verified by that government. This alcoholometer is stated by Mr. Greiner to have been constructed with the utmost care and exactness, the stem having been ground from one extremity to the other to insure perfect uniformity of sectional area—an operation exceedingly difficult to be performed upon an instrument so delicate. It is packed in a neat morocco case, together with

a standard Fahrenheit thermometer, made by J. G. Greiner, jr., in 1848, and a cylindrical glass jar for holding the liquid to be examined.

Standard alcoholometer No. 2, belonging to the Treasury Department. This instrument is one of Greiner's thermo-alcoholometers, certified by him to have been made with extreme care and accuracy. It differs from the former in three respects: it is graduated to read half per cents.; enclosed within it is a Fahrenheit's thermometer graduated from 5° to 115°; and the stem has not been ground to insure uniformity, but was made of a tube carefully selected and examined, so that any irregularities of its sectional area at different points may be too small to produce appreciable errors. Accompanying this alcoholometer there is a separate Fahrenheit's thermometer, graduated upon milk-white glass, and packed in a neat morocco case; also a large glass cylinder, with an attached brass holder for the thermometer, designed for comparing ordinary instruments with the standards.

Standard thermometer No. 1, made in the year 1844 by J. G. Greiner, junior, as recorded on its scale of white glass. This is the same instrument which was used in my experiments for determining the specific gravities of alcoholic liquids, and which has already been described in § 143, p. 516, Sen. Doc. No. 50, 1st sess. 30th Congress. It is graduated, according to the centigrade scale, from — 20° to + 50°, and every degree is divided into five equal parts; each division is, therefore, equivalent to one-fifth of a degree, and temperatures may easily be read to the tenth of a degree. No praise can be too great for the exquisite workmanship of this most delicate and beautiful instrument.

Standard thermometer No. 2, made by Greiner in April, 1845, as stated upon its scale. It is graduated on milk-white glass, from 0° to 240° Fahrenheit on one side, and into the corresponding centigrade degrees on the other.

Both of the thermometers just described are packed in morocco cases; and it is stated of them by Greiner, that the uniformity of the bores of their tubes was verified by the nicest means, and with the greatest care; also, that the positions of their fixed points of graduation were determined with accuracy.

Respectfully submitted by

RICHARD S. McCULLOH.

To Professor A. D. Bache,
Superintendent of Weights, Measures, Balances, &c.

TABLE I,

Containing the densities found by Messrs. Gilpin and Blagden for spirits of different strengths, and at various temperatures: extracted from the 84th volume of Philosophical Transactions, 1794.

Temperature 30° Fahrenheit.

Spirit and water by weight.		Quantity of spirit per cent.	Specific gravity.	Water and spirit by weight.		Quantity of spirit per cent.	Specific gravity.
Sp.	W.			W.	Sp.		
100	0	100.00	.83896	100	100	56.15	.94222
95	5	96.49	.84995	95	90	54.84	.94447
90	10	93.14	.85957	90	85	53.45	.94675
85	15	89.99	.86825	85	80	51.98	.94920
80	20	87.00	.87585	80	75	50.42	.95173
75	25	84.18	.88282	75	70	48.75	.95429
70	30	81.53	.88921	70	65	46.96	.95681
65	35	79.03	.89511	65	60	45.05	.95944
60	40	76.67	.90054	60	55	43.00	.96209
55	45	74.44	.90558	55	50	40.80	.96470
50	50	72.33	.91023	50	45	38.43	.96719
45	55	70.33	.91449	45	40	35.87	.96967
40	60	68.42	.91847	40	35	33.10	.97200
35	65	66.62	.92217	35	30	30.11	.97418
30	70	64.90	.92563	30	25	26.80	.97635
25	75	63.27	.92889	25	20	23.33	.97860
20	80	61.71	.93191	20	15	19.49	.98108
15	85	60.22	.93474	15	10	15.30	.98412
10	90	58.81	.93741	10	5	10.71	.98804
5	95	57.45	.93991	5	0	5.04	.99334

TABLE I—Continued.

Temperature 35° Fahrenheit.

Spirit and water by weight.	Quantity of spirit per cent.	Specific gravity.	Water and spirit by weight.	Quantity of spirit per cent.	Specific gravity.
Sp. + W.			W. + Sp.		
100 + 0	100.00	.83672	100 + 100	56.18	.94025
+ 5	96.49	.84769	95	54.87	.94249
+ 10	93.14	.85729	90	53.49	.94484
+ 15	89.99	.86587	85	52.02	.94734
+ 20	87.00	.87357	80	50.46	.94988
+ 25	84.19	.88059	75	48.79	.95246
+ 30	81.54	.88701	70	47.00	.95502
+ 35	79.05	.89294	65	45.09	.95772
+ 40	76.69	.89839	60	43.05	.96048
+ 45	74.47	.90345	55	40.85	.96315
+ 50	72.35	.90811	50	38.47	.96579
+ 55	70.35	.91241	45	35.92	.96840
+ 60	68.45	.91640	40	33.15	.97086
+ 65	66.65	.92009	35	30.15	.97319
+ 70	64.93	.92355	30	26.91	.97556
+ 75	63.30	.92680	25	23.38	.97801
+ 80	61.74	.92986	20	19.54	.98076
+ 85	60.26	.93274	15	15.34	.98397
+ 90	58.84	.93541	10	10.73	.98804
+ 95	57.48	.93790	5	5.65	.99344

TABLE I—Continued.

Temperature, 40° Fahrenheit.

Spirit and water by weight.	Quantity of spirit per cent.	Specific gravity.	Water and spirit by weight.	Quantity of spirit per cent.	Specific gravity.
Sp. + W.			W. + Sp.		
100 + 0	100.00	.83445	100 + 100	56.22	.93827
5	96.49	.84539	95	54.91	.94058
10	93.16	.85507	90	53.53	.94295
15	90.00	.86361	85	52.06	.94547
20	87.02	.87134	80	50.49	.94802
25	84.21	.87838	75	48.82	.95060
30	81.57	.88481	70	47.04	.95328
35	79.07	.89073	65	45.14	.95602
40	76.71	.89617	60	43.09	.95879
45	74.49	.90127	55	40.89	.96159
50	72.38	.90596	50	38 52	.96434
55	70.38	.91026	45	35.96	.96706
60	68.48	.91428	40	33.20	.96967
65	66.67	.91799	35	30.21	.97220
70	64.96	.92151	30	26.96	.97472
75	63.33	.92476	25	23.42	.97737
80	61.77	.92783	20	19.58	.98033
85	60.29	.93072	15	15.38	.98373
90	58.87	.93341	10	10.76	.98795
95	57.52	.93592	5	5.67	.99345

TABLE I—Continued.

Temperature 45° Fahrenheit.

Spirit and water by weight.	Quantity of spirit per cent.	Specific gravity.	Water and spirit by weight.	Quantity of spirit per cent.	Specific gravity.
Sp. + W.			W. + Sp.		
100 + 0	100.00	.83214	100 + 100	56.25	.93621
5	96.49	.84310	95	54.95	.93860
10	93.16	.85277	90	53.56	.94096
15	90.01	.86131	85	52.09	.94348
20	87.03	.86905	80	50.53	.94605
25	84.23	.87613	75	48.86	.94871
30	81.58	.88255	70	47.08	.95143
35	79 09	.88849	65	45.17	.95423
40	76.73	.89396	60	43.13	.95705
45	74.51	.89909	55	40.93	.95993
50	72.41	.90380	50	38.57	.96280
55	70.41	.90812	45	36.01	.96563
60	68.51	.91211	40	33.25	.96840
65	66.70	.91584	35	30.26	.97110
70	64.99	.91937	30	27.01	.97384
75	63.36	.92264	25	23.47	.97666
80	61.80	.92570	20	19.62	.97980
85	60.32	.92859	15	15.41	.98338
90	58.90	.93131	10	10.79	.98774
95	57.55	.93382	5	5.69	.99338

TABLE I—Continued.

Temperature 50° Fahrenheit.

Spirit and water by weight.	Quantity of spirit per cent.	Specific gravity.	Water and spirit by weight.	Quantity of spirit per cent.	Specific gravity.
Sp. + W.			W. + Sp.		
100 + 0	100.00	.82977	100 + 100	56.29	.93419
+ 5	96.50	.84706	95	54.99	.93658
+ 10	93.17	.85042	90	53.60	.93897
+ 15	90.02	.85902	85	52.13	.94149
+ 20	87.05	.86676	80	50.57	.94414
+ 25	84.25	.87384	75	48.90	.94683
+ 30	81.61	.88030	70	47.12	.94958
35	79.12	.88626	65	45.22	.95243
40	76.76	.89174	60	43.18	.95534
45	74.54	.89684	55	40.98	.95831
50	72.44	.90160	50	38.61	.96126
55	70.44	.90596	45	36.06	.96420
60	68.54	.90997	40	33.30	.96708
65	66.74	.91370	35	30.31	.96995
70	65.02	.91723	30	27.06	.97284
75	63.39	.92051	25	23.52	.97589
80	61.84	.92358	20	19.67	.97920
85	60.85	.92647	15	15.45	.98293
90	58.94	.92919	10	10.82	.98745
95	57.59	.93177	5	5.70	.99316

TABLE I—Continued.

Temperature 55° Fahrenheit.

Spirit and water by weight.	Quantity of spirit per cent.	Specific gravity.	Water and spirit by weight.	Quantity of spirit per cent.	Specific gravity.
Sp. + W.			W. + Sp.		
100 + 0	100.00	.82736	100 + 100	56.33	.93208
5	96.50	.83834	95	55.03	.93452
10	93.18	.84802	90	53.64	.93696
15	90.03	.85664	85	52.17	.93948
20	87.06	.86441	80	50.61	.94213
25	84.27	.87150	75	48.94	.94486
30	81.63	.87796	70	47.16	.94767
35	79.14	.88393	65	45.26	.95057
40	76.79	.88945	60	43.22	.95357
45	74.57	.89458	55	41.03	.95662
50	72.47	.89933	50	38.66	.95966
55	70.47	.90367	45	36.11	.96272
60	68.57	.90768	40	33.35	.96575
65	66.77	.91144	35	30.36	.96877
70	65.06	.91502	30	27.11	.97181
75	63.43	.91837	25	23.57	.97500
80	61.87	.92145	20	19.71	.97847
85	60.39	.92436	15	15.49	.98239
90	58.97	.92707	10	10.85	.98702
95	57.62	.92963	5	5.71	.99284

TABLE I—Continued.

Temperature 60° Fahrenheit.

Spirit and water by weight.	Quantity of spirit per cent.	Specific gravity.	Water and spirit by weight.	Quantity of spirit per cent.	Specific gravity.
Sp. + W.			W. + Sp.		
100 + 0	100.00	.82500	100 + 100	56.36	.93002
+ 5	96.51	.83599	95	55.06	.93247
+ 10	93.19	.84568	90	53.68	.93493
15	90 04	.85430	85	52.21	.93749
20	87.08	.86208	80	50.65	.94018
25	84.28	.86918	75	48.98	.94296
30	81.65	.87569	70	47.20	.94579
35	79.16	.88169	65	45.30	.94876
40	76.81	.88720	60	43.26	.95181
45	74.59	.89232	55	41.07	.95493
50	72.49	.89707	50	38.71	.95804
55	70.49	.90144	45	36.16	.96122
60	68.60	.90549	40	33.40	.96437
65	66.80	.90927	35	30.40	.96752
70	65.09	.91287	30	27.15	.97074
75	63.46	.91622	25	23.61	.97410
80	61 91	.91933	20	19 75	.97771
85	60.43	.92225	15	15 52	.98176
90	59.01	.92499	10	10.87	.98654
95	57.66	.92758	5	5.73	.99244

TABLE I—Continued.

Temperature 65° Fahrenheit.

Spirit and water by weight.	Quantity of spirit per cent.	Specific gravity.	Water and spirit by weight.	Quantity of spirit per cent.	Specific gravity.
Sp. + W.			W. + Sp.		
100 + 0	100.00	.82262	100 + 100	56.40	.92794
5	96.51	.83362	95	55 10	.93040
10	93.20	.84334	90	53 72	.93285
15	90.05	.85193	85	52.25	.93546
20	87.09	.85976	80	50.69	.93822
25	84.30	.86686	75	49.02	.94099
30	81.67	.87337	70	47.25	.94388
35	79.18	.87938	65	45.35	.94689
40	76.84	.88490	60	43.31	.95000
45	74.62	.89006	55	41.11	.95318
50	72.52	.89479	50	38.75	.95635
55	70 52	.89920	45	36.20	.95962
60	68.63	.90328	40	33.44	.96288
65	66.83	.90707	35	30.45	.96620
70	65.12	.91066	30	27.20	.96959
75	63.49	.91400	25	23.66	.97309
80	61.94	.91715	20	19.79	.97688
85	60.46	.92010	15	15.56	.98106
90	59.04	.92283	10	10.89	.98594
95	57.69	.92546	5	5.74	.99194

TABLE I—Continued.

Temperature 70° Fahrenheit.

Spirit and water by weight.	Quantity of spirit per cent.	Specific gravity.	Water and spirit by weight.	Quantity of spirit per cent.	Specific gravity.
Sp. + W.			W. + Sp.		
100 + 0	100.00	.82023	100 + 100	56.44	.92580
5	96.52	.83124	95	55.14	.92828
10	93.20	.84092	90	53.75	.93076
15	90.06	.84951	85	52.28	.93337
20	87.11	.85736	80	50.73	.93616
25	84.32	.86451	75	49.06	.93898
30	81.69	.87105	70	47.29	.94193
35	79.20	.87705	65	45.39	.94500
40	76.86	.88254	60	43.35	.94813
45	74.64	.88773	55	41.16	.95139
50	72.54	.89252	50	38.80	.95469
55	70.55	.89695	45	36.25	.95802
60	68.66	.90104	40	33.49	.96143
65	66.86	.90484	35	30.50	.96484
70	65.15	.90847	30	27.24	.96836
75	63.52	.91181	25	23.70	.97203
80	61.97	.91493	20	19.83	.97596
85	60.49	.91793	15	15.59	.98028
90	59.08	.92069	10	10.92	.98527
95	57.73	.92333	5	5.75	.99134

TABLE I—Continued.

Temperature 75° Fahrenheit.

Spirit and water by weight.	Quantity of spirit per cent.	Specific gravity.	Water and spirit by weight.	Quantity of spirit per cent.	Specific gravity.
Sp. + W.			W. + Sp.		
100 + 0	100.00	.81780	100 + 100	56.47	.92364
5	96.52	.82878	95	55.17	.92613
10	93.21	.83851	90	53.79	.92865
15	90.07	.84710	85	52.32	.93132
20	87.12	.85496	80	50.77	.93413
25	84.34	.86212	75	49.10	.93695
30	81.71	.86864	70	47.32	.93989
35	79.22	.87466	65	45.43	.94301
40	76.88	.88018	60	43.39	.94623
45	74.67	.88538	55	41.20	.94957
50	72.57	.89018	50	38.84	.95292
55	70.58	.89464	45	36.29	.95638
60	68.68	.89872	40	33.53	.95987
65	66.89	.90252	35	30.54	.96344
70	65.18	.90617	30	27.29	.96708
75	63.55	.90952	25	23.74	.97086
80	62.00	.91270	20	19.87	.97495
85	60.52	.91569	15	15.62	.97943
90	59.11	.91849	10	10.94	.98454
95	57.76	.92111	5	5.77	.99066

TABLE I—Continued.

Temperature 80° Fahrenheit.

Spirit and water by weight.	Quantity of spirit per cent.	Specific gravity.	Water and spirit by weight.	Quantity of spirit per cent.	Specific gravity.
Sp. + W.			W. + Sp.		
100 + 0	100.00	.81530	100 + 100	56.51	.92142
5	96.52	.82631	95	55.21	.92393
10	93.22	.83603	90	53.83	.92646
15	90.09	.84467	85	52.36	.92917
20	87.13	.85248	80	50.81	.93201
25	84.35	.85966	75	49.14	.93488
30	81.73	.86622	70	47.37	.93785
35	79.25	.87228	65	45.47	.94102
40	76.90	.87776	60	43.43	.94431
45	74.69	.88301	55	41.24	.94768
50	72.60	.88781	50	38.89	.95111
55	70.61	.89225	45	36.34	.95467
60	68.71	.89639	40	33.58	.95826
65	66 92	.90021	35	30.59	.96192
70	65.21	.90385	30	27.33	.96568
75	63.59	.90723	25	23.79	.96963
80	62.04	.91046	20	19.91	.97385
85	60.56	.91340	15	15.65	.97845
90	59.15	.91622	10	10.97	.98367
95	57.80	.91891	5	5.78	.98991

TABLE II,

Showing the per cents. by volume of absolute alcohol contained in the experimental mixtures of Gilpin—absolute alcohol being assumed to be such that Gilpin's spirit, of the specific gravity 0.825 *at* 60° *Fahrenheit, (water at* 60° *being unity,) contains* 92.6 *per cent. by volume as determined by Tralles.*

Temperature 60° Fahrenheit.

Gilpin's mixture by weight.		Equivalent per cent.			Gilpin's mixtures by weight.		Equivalent per cent.		
		Gilpin: Spirit 0.825 by volume.	*Per cent.*—calculated independently.	*Per cent.*—calculated from Gilpin.			*Gilpin*: Spirit 0.825 by volume.	*Per cent.*—calculated independently.	*Per cent.*—calculated from Gilpin.
Sp.	W.				W.	Sp.			
100	0	100.00	92.6		100	100	56.36	52.194	52.190
	5	96.51	89.366	89.368		95	55.06	50.990	50.985
	10	93.19	86.292	86.294		90	53.68	49.708	49.708
	15	90.04	83.381	83.377		85	52.21	48.347	48.346
	20	87.08	80.635	80.636		80	50.65	46 901	46.902
	25	84.28	78.047	78.043		75	48.98	45.360	45.355
	30	81.65	75.607	75.608		70	47.20	43.711	43.707
	35	79.16	73.306	73.302		65	45.30	41.951	41.948
	40	76.81	71.130	71.126		60	43.26	40.062	40.059
	45	74.59	69.073	69.071		55	41.07	38.033	38 031
	50	72.49	67.126	67.125		50	38.71	35.844	35 845
	55	70 49	65.277	65.274		45	36.16	33.483	33.484
	60	68.60	63.521	63.523		40	33.40	30 927	30.928
	65	66.80	61.853	61.856		35	30.40	28.155	28.150
	70	65.09	60.272	60.273		30	27.15	25.144	25.141
	75	63.46	58.765	58.774		25	23.61	21.867	21.863
	80	61.91	57.326	57.320		20	19.75	18.290	18 288
	85	60.43	55.954	55 958		15	15.52	14.373	14.371
	90	59.01	54.644	54.643		10	10.87	10.066	10.065
	95	57.66	53.392	53.393		5	5.73	5.305	5.306

TABLE III,

Showing Gilpin & Blagden's densities corrected for errors of temperature, and reduced to standard of Tralles.

Temperatures 20° and 25°.

Spirit and water by weight.	Per cent.	Temperature 20°—specific gravity.	Temperature 25°—specific gravity.	Water and spirit by weight.	Per cent.	Temperature 20°—specific gravity.	Temperature 25°—specific gravity.
Sp. W.				W. Sp.			
100 + 0	92.600	.84275	.84051	100 + 100	52.194	.94520	.94329
+ 5	89.365	.85372	.85147	+ 95	50.990	.94735	.94548
10	86.292	.86326	.86104	90	49.708	.94963	.94778
15	83.381	.87198	.86972	85	48.347	.95198	.95017
20	80.635	.87947	.87727	80	46.901	.95445	.95267
25	78.047	.88637	.88421	75	45.360	.95688	.95514
30	75.607	.89270	.89056	70	43.711	.95929	.95762
35	73.306	.89860	.89647	65	41.951	.96184	.96022
40	71.130	.90401	.90189	60	40.063	.96438	.96282
45	69 073	.90891	.90684	55	38 033	.96704	.96554
50	67.126	.91373	.91163	50	35.844	.96904	.96770
55	65.277	.91783	.91577	45	33 483	.97127	.97005
60	63.521	.92175	.91971	40	30.927	.97331	.97225
65	61.854	.92544	.92341	35	28.155	.97504	.97419
70	60.272	.92879	.92679	30	25.144	.97681	.97617
75	58.765	.93207	.93007	25	21.867	.97882	.97840
80	57 326	.93504	.93306	20	18.290	.98066	.98048
85	55.954	.93778	.93584	15	14.373	.98323	.98326
90	54.644	.94039	.93847	10	10.066	.98684	.98703
95	53.392	.94299	.94105	5	5.305	.99197	.99227

TABLE III—Continued.

Temperature 30°.

Spirit and water by weight.		Specific gravity.	Corrected specific gravity.	Water and spirit by weight.		Specific gravity.	Corrected specific gravity.
Sp. W.	Per cent.			W. S.	Per cent.		
100 + 0	92.600	.83821	.83825	100 + 100	52.194	.94137	.94136
5	89.365	.84919	.84920	95	50.990	.94362	.94358
10	86.292	.85880	.85880	90	49.708	.94590	.94590
15	83.381	.86747	.86744	85	48.347	.94835	.94833
20	80.635	.87506	.87505	80	46.901	.95087	.95086
25	78.047	.88203	.88202	75	45.360	.95343	.95337
30	75.607	.88841	.88840	70	43.711	.95595	.95592
35	73.306	.89430	.89432	65	41.951	.95858	.95856
40	71.130	.89973	.89975	60	40.063	.96122	.96123
45	69.073	.90476	.90474	55	38.033	.96383	.96400
50	67.126	.90941	.90951	50	35.844	.96632	.96632
55	65.277	.91367	.91368	45	33.483	.96880	.96879
60	63.521	.91764	.91764	40	30.927	.97112	.97114
65	61.854	.92134	.92136	35	28.155	.97330	.97328
70	60.272	.92480	.92476	30	25.144	.97547	.97546
75	58.765	.92805	.92805	25	21.867	.97772	.97790
80	57.326	.93107	.93106	20	18.290	.98020	.98021
85	55.954	.93390	.93387	15	14.373	.98323	.98320
90	54.644	.93657	.93652	10	10.066	.98715	98712
95	53.392	.93906	.93908	5	5.305	.99245	.99247

TABLE III—Continued.

Temperature 35°.

Spirit and water by weight.	Per cent.	Specific gravity.	Corrected specific gravity.	Water and spirit by weight.	Per cent.	Specific gravity.	Corrected specific gravity.
Sp. W.				W. Sp.			
100 + 0	92.600	.83597	.83597	100 + 100	52.194	.93940	.93940
+ 5	89.365	.84693	.84692	95	50.990	.94164	.94166
10	86.292	.85652	.85654	90	49.708	.94399	.94400
15	83.381	.86509	.86515	85	48.347	.94649	.94646
20	80.635	.87278	.87281	80	46.901	.94903	.94903
25	78.047	.87980	.87981	75	45.360	.95160	.95157
30	75.607	.88621	.88621	70	43.711	.95416	.95418
35	73.306	.89214	.89214	65	41.951	.95686	.95687
40	71.130	.89758	.89758	60	40.063	.95962	.95960
45	69.073	.90264	.90261	55	38.033	.96228	.96243
50	67.126	.90729	.90736	50	35.844	.96492	.96490
55	65.277	.91159	.91157	45	33.483	.96753	.96749
60	63.521	.91558	.91555	40	30.927	.96999	.96998
65	61.854	.91926	.91928	35	28.155	.97231	.97232
70	60.272	.92272	.92271	30	25.144	.97468	.97469
75	58.765	.92597	.92600	25	21.867	.97713	.97732
80	57.326	.92902	.92903	20	18.290	.97988	.97986
85	55.954	.93190	.93187	15	14.373	.98308	.98305
90	54.644	.93457	.93454	10	10.066	.98715	.98712
95	53.392	.93706	.93709	5	5.305	.99255	.99257

TABLE III—Continued.

Temperature 40°.

Spirit and water by weight.		Per cent.	Specific gravity.	Corrected specific gravity.	Water and spirit by weight.		Per cent.	Specific gravity.	Corrected specific gravity.
Sp.	W.				W.	Sp.			
100	0	92.600	.83370	.83367	100	100	52.194	.93743	.93741
	5	89.365	.84463	.84462		95	50.990	.93973	.93971
	10	86.292	.85430	.85426		90	49.708	.94210	.94207
	15	83.381	.86283	.86285		85	48.347	.94462	.94456
	20	80.635	.87056	.87055		80	46.901	.94717	.94715
	25	78.047	.87759	.87758		75	45.360	.94974	.94974
	30	75.607	.88401	.88400		70	43.711	.95242	.95241
	35	73.306	.88993	.88994		65	41.951	.95516	.95515
	40	71.130	.89536	.89539		60	40.063	.95793	.95794
	45	69.073	.90046	.90046		55	38.043	.96072	.96082
	50	67.126	.90514	.90519		50	35.844	.96347	.96344
	55	65.277	.90944	.90944		45	33.483	.96619	.96614
	60	63.521	.91346	.91343		40	30.927	.96880	.96877
	65	61.854	.91716	.91717		35	28.155	.97132	.97130
	70	60.272	.92068	.92063		30	25.144	.97384	.97385
	75	58.765	.92393	.92393		25	21.867	.97649	.97666
	80	57.326	.92700	.92698		20	18.290	.97945	.97943
	85	55.954	.92988	.92984		15	14 373	.98284	.98281
	90	54.644	.93257	.93253		10	10 066	.98706	.98702
	95	53.392	.93508	.93508		5	5.305	.99256	.99257

TABLE III—Continued.

Temperature 45°.

Spirit and water by weight.	Per cent.	Specific gravity.	Corrected specific gravity.	Water and spirit by weight.	Per cent.	Specific gravity.	Corrected specific gravity.
Sp. W.				W. Sp			
100 + 0	92.600	.83139	.83135	100 + 100	52.194	.93537	.93540
+ 5	89.365	.84234	.84230	95	50.990	.93776	.93773
10	86.292	.85200	.85196	90	49.708	.94011	.94012
15	83.381	.86053	.86053	85	48.347	.94263	.94263
20	80.635	.86827	.86827	80	46.901	.94520	.94525
25	78.047	.87534	.87533	75	45.360	.94786	.94788
30	75.607	.88176	.88177	70	43.711	.95057	.95060
35	73.306	.88769	.8772	65	41.951	.95337	.95339
40	71.130	.89316	.89318	60	40.063	.95619	.95625
45	69.073	.89828	.89828	55	38.033	.95907	.95917
50	67.126	.90299	.90299	50	35.844	.96193	.96193
55	65.277	.90730	.90728	45	33.483	.96476	.96475
60	63.521	.91129	.91129	40	30.927	.96753	.96752
65	61.854	.91502	.91504	35	28.155	.97023	.97022
70	60.272	.91854	.91852	30	25.144	.97296	.97295
75	58.765	.92181	.92183	25	21.867	.97578	.97592
80	57.326	.92487	.92490	20	18.290	.97892	.97891
85	55.954	.92775	.92778	15	14.373	.98250	.98247
90	54.644	.93047	.93049	10	10.066	.98685	.98682
95	53.392	.93298	.93304	5	5.305	.99249	.99247

TABLE III—Continued.

Temperature 50°.

Spirit and water by weight.		Per cent.	Specific gravity.	Corrected specific gravity.	Water and spirit by weight.		Per cent.	Specific gravity.	Corrected specific gravity.
Sp.	W.				W.	Sp.			
100 +	0	92.600	.82902	.82901	100 +	100	52.194	.93335	.93336
	5	89.365	.84000	.83997		95	50.990	.93574	.93572
	10	86.292	.84965	.84964		90	49.708	.93812	.93814
	15	83.381	.85825	.85820		85	48.347	.94064	.94067
	20	80.635	.86598	.86597		80	46.901	.94329	.94332
	25	78.047	.87305	.87305		75	45.360	.94598	.94599
	30	75.607	.87951	.87951		70	43.711	.94873	.94876
	35	73.306	.88546	.88547		65	41.951	.95157	.95160
	40	71.130	.89094	.89094		60	40.063	.95448	.95452
	45	69.073	.89603	.89607		55	38 033	.95745	.95749
	50	67.126	.90079	.90077		50	35.844	.96040	.96038
	55	65.277	.90514	.90510		45	33.483	.96333	.96332
	60	63.521	.90915	.90912		40	30.927	.96621	.96622
	65	61.854	.91288	.91288		35	28.155	.96908	.96908
	70	60.272	.91640	.91639		30	25.144	.97196	.97198
	75	58.765	.91968	.91971		25	21.867	.97501	.97510
	80	57.326	.92275	.92280		20	18.290	.97832	.97831
	85	55.954	.92564	.92569		15	14.373	.98205	.98204
	90	54.644	.92835	.92842		10	10.066	.98656	.98653
	95	53.392	.93093	.93098		5	5.305	.99227	.99227

TABLE III—Continued.

Temperature 55°.

Spirit and water by weight.	Per cent.	Specific gravity.	Corrected specific gravity.	Water and spirit by weight.	Per cent.	Specific gravity.	Corrected specific gravity.
Sp. W.				W. Sp.			
100 + 0	92.600	.82262	.82666	100 + 100	52.194	.93124	.93129
5	89.365	.83759	.83762	95	50.990	.93368	.93369
10	86.292	.84726	.84730	90	49.708	.93612	.93613
15	83.381	.85587	.85586	85	48.347	.93863	.93868
20	80.635	.86363	.86365	80	46.901	.94128	.94136
25	78.047	.87072	.87075	75	45.360	.94401	.94407
30	75.607	.87717	.87723	70	43.711	.94682	.94688
35	73.306	.88313	.88320	65	41.951	.94971	.94978
40	71.130	.88865	.88868	60	40.063	.95271	.95276
45	69.073	.89377	.89383	55	38.033	.95576	.95577
50	67.126	.89852	.89853	50	35.844	.95880	.95879
55	65.277	.90286	.90289	45	33.483	.96185	.96184
60	63.521	.90686	.90693	40	30.927	.96488	.96487
65	61.854	.91062	.91069	35	28.155	.96790	.96789
70	60.272	.91420	.91423	30	25.144	.97094	.97095
75	58.765	.91754	.91756	25	21.867	.97412	.97420
80	57.326	.92062	.92067	20	18.290	.97759	.97763
85	55.954	.92353	.92358	15	14.373	.98151	.98152
90	54.644	.92624	.92632	10	10.066	.98613	.98614
95	53.392	.92879	.92889	5	5.305	.99195	.99197

TABLE III—Continued.

Temperature 60°.

Spirit and water by weight.		Per cent.	Specific gravity.	Corrected specific gravity.	Water and spirit by weight.		Per cent.	Specific gravity.	Corrected specific gravity.
Sp.	W.				W.	Sp.			
100 +	0	92.600	.82426	.82429	100 +	100	52.194	.92918	.92920
	5	89.365	.83524	.83525		95	50.990	.93163	.93163
	10	86.292	.84492	.84494		90	49.708	.93409	.93409
	15	83.381	.85353	.85350		85	48.347	.93665	.93666
	20	80.635	.86130	.86131		80	46.901	.93933	.93937
	25	78.047	.86840	.86843		75	45.360	.94211	.94212
	30	75.607	.87490	.87493		70	43.711	.94494	.94497
	35	73.306	.88090	.88091		65	41.951	.94791	.94792
	40	71.130	.88640	.88640		60	40.063	.95095	.95097
	45	69.073	.89152	.89156		55	38.033	.95407	.95401
	50	67.126	.89626	.89626		50	35.844	.95718	.95716
	55	65.277	.90063	.90066		45	33.483	.96035	.96032
	60	63.521	.90468	.90471		40	30.927	.96350	.96348
	65	61.854	.90845	.90848		35	28.155	.96665	.96664
	70	60.272	.91205	.91204		30	25.194	.96987	.96985
	75	58.765	.91539	.91539		25	21.867	.97322	.97322
	80	57.326	.91850	.91851		20	18.290	.97683	.97686
	85	55.954	.92142	.92144		15	14.373	.98088	.98091
	90	54.644	.92416	.92419		10	10.066	.98565	.98566
	95	53.392	.92675	.92677		5	5.305	.99155	.99157

TABLE III—Continued.

Temperature 65° Fahrenheit.

Spirit and water by weight.		Per cent.	Specific gravity.	Corrected specific gravity.	Water and spirit by weight.		Per cent.	Specific gravity.	Corrected specific gravity.
Sp.	W.				W.	Sp.			
100	+ 0	92 600	.82188	.82190	100	+ 100	52.194	.92710	.92708
	5	89.365	.83287	.83286		95	50.990	.92956	.92954
	10	86.292	.84258	.84256		90	49.708	.93201	.93202
	15	83.381	.85116	.85113		85	48.347	.93462	.93462
	20	80.635	.85899	.85895		80	46.901	.93738	.93735
	25	78.047	.86608	.86609		75	45.360	.94014	.94014
	30	75.607	.87258	.87260		70	43.711	.94303	.94302
	35	73.306	.87859	.87859		65	41.951	.94604	.94603
	40	71.130	.88410	.88409		60	40.063	.94914	.94914
	45	69.073	.88926	.88926		55	38 033	.95232	.95222
	50	67.136	.89398	.89397		50	35.844	.95549	.95549
	55	65.277	.89839	.89841		45	33.483	.95876	.95876
	60	63.521	.90247	.90247		40	30.927	.96201	.96204
	65	61.854	.90625	.90624		35	28.155	.96533	.96533
	70	60.272	.90984	.90983		30	25.144	.96872	.96869
	75	58.765	.91318	.91319		25	21.867	.97221	.97215
	80	57.326	.91632	.91633		20	18.290	.97600	.97601
	85	55.954	.91927	.91927		15	14.373	.98018	.98021
	90	54.644	.92200	.92203		10	10.066	.98505	.98508
	95	53.392	.92463	.92463		5	5.305	.99105	.99107

TABLE III—Continued.

Temperature 70° Fahrenheit.

Spirit and water by weight.	Per cent.	Specific gravity.	Corrected specific gravity.	Water and spirit by weight.	Per cent.	Specific gravity.	Corrected specific gravity.
Sp. W.				W. Sp.			
100 + 0	92.600	.81949	.81949	100 + 100	52.194	.92497	.92493
5	89 365	.83049	.83046	95	50.990	.92744	.92742
10	86.292	.84016	.84016	90	49.708	.92992	.92992
15	83.381	.84875	.84875	85	48.347	.93253	.93255
20	80.635	.85659	.85657	80	46.901	.93532	.93530
25	78.047	.86373	.86372	75	45.360	.93813	.93813
30	75.607	.87027	.87025	70	43.711	.94108	.94104
35	73.306	.87626	.87624	65	41.951	.94415	.94411
40	71.130	.88175	.88176	60	40.063	.94728	.94728
45	69.073	.88693	.88693	55	38.033	.95053	.95039
50	67.126	.89172	.89166	50	35.844	.95383	.95378
55	65.277	.89614	.89613	45	33.483	.95716	.95715
60	63.521	.90023	.90020	40	30.927	.96056	.96055
65	61.854	.90403	.90397	35	28.155	.96397	.96397
70	60.272	.90765	.90759	30	25.144	.96749	.96746
75	58.765	.91099	.91097	25	21.867	.97116	.97100
80	57.326	.91411	.91412	20	18.290	.97508	.97508
85	55.954	.91710	.91707	15	14.373	.97940	.97941
90	54.644	.91986	.91984	10	10.066	.98438	.98440
95	53.392	.92250	.92247	5	5.305	.99045	.99047

TABLE III—Continued.

Temperature 75°.

Spirit and water by weight.	Per cent.	Specific gravity.	Corrected specific gravity.	Water and spirit by weight.	Per cent.	Specific gravity.	Corrected specific gravity.
Sp. W.				W. Sp.			
100 + 0	92.600	.81706	.81706	100 + 100	52.194	.92281	.92276
5	89.365	.82803	.82804	95	50.990	.92530	.92528
10	86.292	.83776	.83774	90	49.708	.92781	.92779
15	83.381	.84634	.84635	85	48.347	.93048	.93045
20	80.635	.85419	.85417	80	46.901	.93329	.93322
25	78.047	.86134	.86133	75	45.360	.93611	.93609
30	75.607	.86786	.86787	70	43.711	.93904	.93902
35	73.306	.87387	.87387	65	41.951	.94216	.94216
40	71.130	.87939	.87940	60	40.063	.94538	.94539
45	69.073	.88458	.88458	55	38.033	.94872	.94853
50	67.126	.88938	.88932	50	35.844	.95206	.95203
55	65.277	.89383	.89383	45	33.483	.95552	.95550
60	63.521	.89791	.89791	40	30.927	.95901	.95901
65	61.854	.90171	.90168	35	28.155	.96257	.96255
70	60.272	.90532	.90532	30	25.144	.96621	.96617
75	58.765	.90870	.90872	25	21.867	.96999	.96977
80	57.326	.91188	.91189	20	18.290	.97407	.97406
85	55.954	.91487	.91484	15	14.373	.97855	.97852
90	54.644	.91766	.91762	10	10.066	.98365	.98363
95	53.392	.92028	.92028	5	5.305	.98977	.98977

TABLE III—Continued.

Temperature 80°.

Spirit and water by weight.		Per cent.	Specific gravity.	Corrected specific gravity.	Water and spirit by weight.		Per cent.	Specific gravity.	Corrected specific gravity.
Sp.	W.				W.	Sp.			
100	+ 0	92.600	.81457	.81461	100	+ 100	52.194	.92059	.92056
	5	89.365	.82557	.82560		95	50.990	.92310	.92311
	10	86.292	.83528	.83530		90	49.708	.92563	.92564
	15	83.381	.84391	.84394		85	48.347	.92833	.92832
	20	80.635	.85171	.85175		80	46.901	.93117	.93111
	25	78.047	.85889	.85892		75	45.360	.93404	.93402
	30	75.607	.86544	.86547		70	43.711	.93701	.93697
	35	73.306	.87150	.87148		65	41,951	.94017	.94017
	40	71.130	.87697	.87702		60	40.063	.94346	.94346
	45	69.073	.88222	.88220		55	38.033	.94683	.94663
	50	67.126	.88701	.88696		50	35.844	.95025	.95024
	55	65.277	.89145	.89150		45	33 483	.95381	.95381
	60	63.521	.89558	.89559		40	30.927	.95740	.95743
	65	61.854	.89940	.89936		35	28.155	.96105	.96107
	70	60.272	.90304	.90303		30	25.144	.96481	.96481
	75	58.765	.90641	.90644		25	21.867	.96876	.96846
	80	57.326	.90964	.90963		20	18.290	.97297	.97296
	85	55.954	.91258	.91258		15	14 373	.97757	.97754
	90	54.644	.91540	.91537		10	10.066	.98278	.98276
	95	53.392	.91808	.91806		5	5.305	.98902	.98897

TABLE III—Continued.

Temperatures 85° and 90°.

Spirit and water by weight.		Per cent.	Temperature 85° specific gravity.	Temperature 90° specific gravity.	Water and spirit by weight.		Per cent.	Temperature 85° specific gravity.	Temperature 90° specific gravity.
Sp.	W.				W.	Sp.			
100 +	0	92.600	.81214	.80965	100 +	100	52.194	.91833	.91608
	5	89.365	.82314	.82066		95	50.990	.92091	.91868
	10	86.292	.83284	.83036		90	49.708	.92346	.92125
	15	83.381	.84152	.83908		85	48.347	.92616	.92397
	20	80 635	.84931	.84685		80	46.901	.92897	.92680
	25	78.047	.85649	.85403		75	45.360	.93192	.92979
	30	75.607	.86305	.86060		70	43.711	.93488	.93276
	35	73.306	.86907	.86663		65	41.951	.93815	.93610
	40	71 130	.87462	.87219		60	40.063	.94150	.93951
	45	69.073	.87979	.87735		55	38.033	.94469	.94272
	50	67.126	.88458	.88217		50	35 844	.94840	.94652
	55	65.277	.88915	.88678		45	33.483	.95207	.95029
	60	63.521	.89325	.89088		40	30.927	.95580	.95412
	65	61.854	.89701	.89464		35	28.155	.95953	.95794
	70	60.272	.90071	.89837		30	25.144	.96339	.96190
	75	58.765	.90414	.90181		25	21.867	.96707	.96560
	80	57.326	.90735	.90504		20	18 290	.97178	.97051
	85	55.954	.91029	.90797		15	14.373	.97647	.97531
	90	54.644	.91309	.91078		10	10.066	.98180	.98074
	95	53.392	.91582	.91355		5	5.305	.98807	.98707

TABLE III—Continued.

Temperatures 95° and 100°.

Spirit and water by weight.	Per cent.	Temperature 95°— specific gravity.	Temp'ature 100°— specific gravity.	Water and spirit by weight.	Per cent.	Temperature 95°— specific gravity.	Temp'ature 100°— specific gravity.
Sp. W.				W. Sp.			
100 + 0	92.600	.80714	.80461	100 + 100	52.194	.91380	.91149
5	89.365	.81816	.81564	95	50.990	.91643	.91415
10	86.292	.82786	.82534	90	49.708	.91902	.91676
15	83.381	.83663	.83417	85	48.347	.92175	.91951
20	80.635	.84437	.84187	80	46.901	.92460	.92237
25	78.047	.85155	.84905	75	45.360	.92763	.92544
30	75.607	.85813	.85564	70	43.711	.93060	.92841
35	73.306	.86417	.86169	65	41.951	.93401	.93189
40	71.130	.86974	.86727	60	40.063	.93748	.93542
45	69.073	.87488	.87238	55	38.033	.94071	.93866
50	67.126	.87974	.87729	50	35.844	.94460	.94264
55	65.277	.88438	.88196	45	33.483	.94847	.94660
60	63.521	.88849	.88607	40	30.927	.95240	.95063
65	61.854	.89224	.88981	35	28.155	.95629	.95458
70	60.272	.89600	.89360	30	25.144	.96035	.95873
75	58.765	.89946	.89708	25	21.867	.96405	.96242
80	57.326	.90271	.90035	20	18.290	.96916	.96773
85	55.954	.90562	.90325	15	14.373	.97405	.97270
90	54.644	.90844	.90607	10	10.066	.97958	.97833
95	53.392	.91126	.90894	5	5.305	.98597	.98477

TABLE IV.

Density of water at different temperatures.

Temperature—Fah.	Density—Gilpin's data.	Density corrected and extended.	Explanations.
20°	.....	.99901	Despretz data.
25	.....	.99944	
30	.99984	.99984	Gilpin's observed data.
35	.99999	.99999	
40	1.00000	1.00000	
45	.99996	.99993	Gilpin's results corrected for 2d differences.
50	.99978	.99975	
55	.99948	.99947	
60	.99910	.99910	
65	.99860	.99863	
70	.99804	.99807	
75	.99740	.99741	
80	.99669	.99666	
85	.....	.99581	Gilpin's results extended by means of 2d differences.
90	.....	.99487	
95	.....	.99383	
100	.....	.99270	

Ex.—4

TABLE V,

Showing the comparative results obtained by the logarithmic interpolating formula of Langrange, and those computed by simple proportion, the temperature being 60° *Fahrenheit.*

Per cent.	Specific gravity by Lagrange's formula.	Specific gravity by proportion.	Difference.
5	0.99196	0.99200	— 0.00004
10	.98575	.98574	+ .00001
15	.98028	.98026	+ .00002
20	.97514	.97512	+ .00002
25	.97005	.97000	+ .00005
30	.96452	.96454	— .00002
35	.95828	.95829	— .00001
40	.95106	.95106	.00000
45	.94274	.94274	.00000
50	.93353	.93353	.00000
55	.92344	.92344	.00000
60	.91264	.91264	.00000
65	.90129	.90130	— .00001
70	.88921	.88923	— .00002
75	.87649	.87651	— .00002
80	.86304	.86306	— .00002
85	.84868	.84874	— .00006
90	.83304	.83310	— .00006

TABLE VI,

Used in computing the values of y in formula B.

Experimental per cents. x'', x'.	Difference $x'' - x'$.	Log. of difference.	Arith. computation of log. $x'' - x'$.
92.600			
89 365	3.235	0.5098743	9.4901257
86.292	3.073	0.4875626	9.5124374
83 381	2 911	0.4640422	9.5359578
80.635	2.746	0.4387005	9.5612995
78.047	2 583	0.4129643	9.5870357
75.607	2.440	0.3873898	9.6126102
73.306	2.301	0.3619166	9.6380834
71.130	2.176	0.3376589	9.6623411
69.073	2.057	0.3132343	9.6867657
67.126	1.947	0.2893660	9.7106340
65.277	1 849	0.2669369	9 7330631
63.521	1.756	0 2445245	9.7554755
61.854	1.667	0.2219356	9.7780644
60.272	1.582	0.1992065	9.8007935
58.765	1.507	0.1781133	9.8218867
57.326	1.439	0.1580608	9.8419392
55.954	1.372	0.1373541	9.8626459
54.644	1.310	0.1172713	9.8827287
53.392	1.252	0.0976043	9.9023957
52.194	1.198	0.0784568	9.9215432
50.990	1.204	0.0806265	9.9193735

TABLE VI—Continued.

x'', x'.	$x''-x'$.	Log. $x''-x'$.	Arith. computation, log. $x''-x'$.
49.708	1.282	0.1078880	9.8921120
48.347	1.361	0.1338581	9.8661419
46.901	1.446	0.1601683	9.8398317
45.360	1.541	0.1878026	9.8121974
43.711	1 649	0.2172207	9.7827793
41.951	1.760	0.2455127	9.7544873
40.063	1.888	0.2760020	9.7239980
38.033	2.030	0 3074960	9.6925040
35.844	2.189	0.3402458	9.6597542
33.483	2.361	0.3730960	9.6269040
30.927	2.556	0 4075608	9.5924392
28.155	2.772	0.4427932	9.5572068
25.144	3.011	0 4787108	9.5212892
21.867	3.277	0.5154764	9.4845236
18.290	3.577	0.5535189	9.4464811
14.373	3.917	0.5929536	9.4070464
10.066	4.307	0.6341749	9.3658251
5.305	4.761	0.6776982	9.3223018
0.000	5.305	0.7246854	9.2753146

TABLE VII,

Used in computing the values of y.

Even per cents., x.	Experimental per cents., x'.	Difference, $x - x'$.	Log. $x - x'$.	Log. $\frac{x - x'}{x'' - x'}$.
92	92.600	0.600	$\overline{1}$.7781513	9.2682770
91	.....	1.600	0.2041200	.6942457
90	.....	2.600	0.4149733	.9050990
89	89.365	0.365	$\overline{1}$.5622929	.0747303
88	.....	1.365	0.1351327	.6475701
87	.....	2.365	0.3738311	.8862685
86	86.292	0.292	$\overline{1}$.4653829	.0013407
85	.....	1.292	0.1112625	.6472203
84	.....	2.292	0.3602146	.8961724
83	83.381	0.381	$\overline{1}$.5809250	.1422245
82	.....	1.381	0.1401937	.7014932
81	.....	2.381	0.3767594	.9380589
80	80.635	0.635	$\overline{1}$.8027737	.3898094
79	.....	1.635	0.2135178	.8005535
78	78.047	0.047	$\overline{2}$.6720979	8.2847081
77	.....	1.047	0.0199467	9.6325569
76	.....	2.047	0.3111178	.9237280
75	75.607	0.607	$\overline{1}$.7831887	.4212721
74	.....	1.607	0.2060159	.8440993
73	73.306	0.306	$\overline{1}$.4857214	.1480625
72	.....	1.306	0.1159432	.7782843
71	71.130	0.130	$\overline{1}$.1139434	8.8007091
70	.....	1.130	0.0530784	9.7398441
69	69.073	0.073	$\overline{2}$.8633228	8.5739568
68	.....	1.073	0.0305997	9.7412337
67	67.126	0.126	$\overline{1}$.1003705	8.8334336
66	.....	1.126	0.0515384	9.7846015
65	65.277	0.277	$\overline{1}$.4424798	.1979553
64	.....	1.277	0.1061909	.8616664
63	63.521	0.521	$\overline{1}$.7168377	.4949021
62	.....	1.521	0.1821292	.9601936

TABLE VII—Continued.

Even per cents., x.	Experimental per cents., x'.	Difference, $x - x'$.	Log. $x - x'$.	Log. $\frac{x - x'}{x'' - x'}$.
61	61.854	0.854	$\bar{1}$.9314579	9.7322514
60	60.272	0.272	$\bar{1}$.4345689	.2564556
59	.....	1.272	0.1044871	.9263738
58	58.765	0.765	$\bar{1}$.8836614	.7256006
57	57.326	0.326	$\bar{1}$.5132176	.3758635
56	.....	1.326	0.1225435	.9851894
55	55.954	0.954	$\bar{1}$.9795484	.8622771
54	54.644	0.644	$\bar{1}$.8088859	.7112816
53	53.392	0.392	$\bar{1}$.5932861	.5148293
52	52.194	0.194	$\bar{1}$.2878017	.2071752
51	.....	1.194	0.0770043	.9963778
50	50.990	0.990	$\bar{1}$.9956352	.8877472
49	49.708	0.708	$\bar{1}$.8500333	.7161752
48	48.347	0.347	$\bar{1}$.5403295	.3801612
47	.....	1.347	0.1293676	.9691993
46	46.901	0.901	$\bar{1}$.9547248	.7669222
45	45.360	0.360	$\bar{1}$.5563025	.3390818
44	.....	1.360	0.1335389	.9163182
43	43.711	0.711	$\bar{1}$.8518696	.6063569
42	.....	1.711	0.2332500	.9877373
41	41.951	0.951	$\bar{1}$.9781805	.7021785
40	40.063	0.063	$\bar{2}$.7993405	8.4918445
39	.....	1.063	0.0265332	9.7190372
38	38.033	0.033	$\bar{2}$.5185139	8.1782681
37	.....	1.033	0.0141003	9.6738545
36	.....	2.033	0.3081374	.9678916
35	35.844	0.844	$\bar{1}$.9263424	.5532464
34	.....	1.844	0.2657609	.8926649
33	33.483	0.483	$\bar{1}$.6839471	.2763863
32	.....	1.483	0.1711412	9.7635804
31	.....	2.483	0.3949767	.9874159

TABLE VII—Continued.

Even per cents., x.	Experimental per cents., x'.	Difference, $x - x'$.	Log. $x - x'$.	Log. $\frac{x - x'}{x'' - x'}$.
30	30.927	0.927	$\overline{1}$.9670797	.5242865
29	.....	1.927	0.2848817	.8420885
28	28.155	0.155	$\overline{1}$.1903317	8.7116209
27	.....	1.155	0.0625820	9.5838712
26	.....	2.155	0.3334473	.8547365
25	25.144	0.144	$\overline{1}$.1583625	8.6428861
24	.....	1.144	0.0584260	9.5429496
23	.....	2.144	0.3312248	.8157484
22	.....	3.144	0.4974825	.9820061
21	21.867	0.867	$\overline{1}$.9380191	.3845002
20	.....	1.867	0.2711443	.7176254
19	.....	2.867	0.4574277	.9039088
18	18.290	0.290	$\overline{1}$.4623980	8.8694444
17	.....	1.290	0.1105897	9.5176361
16	.....	2.290	0.3598355	.7668819
15	.....	3.290	0.5171959	.9242423
14	14.373	0.373	$\overline{1}$.5717088	8.9375339
13	.....	1.373	0.1376705	9.5034956
12	.....	2.373	0.3752977	.7411228
11	.....	3.373	0.5280163	.8938414
10	10.066	0.066	$\overline{2}$.8195439	8.1418457
9	.....	1.066	0.0277572	9.3500590
8	.....	2.066	0.3151303	.6374321
7	.....	3.066	0.4865722	.8088740
6	.....	4.066	0.6091674	.9314692
5	5.305	0.305	1.4842998	8.7596144
4	.....	1.305	0.1156105	9.3909251
3	.....	2.305	0.3626709	.6379855
2	.....	3.305	0.5191715	.7944861
1	.....	4.305	0.6339732	.9092878

TABLE VIII,

Showing the true densities and volumes of alcohol of every strength, from 1 to 100 per cent. inclusive, and at every temperature from 29° to 100° inclusive.

Temperature 20°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99768	1000.0	34	.97078	1011.6	67	.91401	1019.5
2	.99636	1000.1	35	.96984	1012.1	68	.91156	1019.5
3	.99503	1000.2	36	.96890	1012.5	69	.90909	1019.5
4	.99370	1000.3	37	.96798	1013.1	70	.90670	1019.6
5	.99237	1000.4	38	.96707	1013.6	71	.90432	1019.8
6	.99123	1000.5	39	.96577	1013.9	72	.90184	1019.9
7	.99014	1000.7	40	.96446	1014.1	73	.89936	1020.0
8	.98907	1000.9	41	.96312	1014.4	74	.89682	1020.1
9	.98799	1001.0	42	.96177	1014.7	75	.89426	1020.3
10	.98691	1001.2	43	.96032	1015.0	76	.89168	1020.4
11	.98605	1001.4	44	.95887	1015.2	77	.88909	1020.5
12	.98522	1001.7	45	.95741	1015.6	78	.88649	1020.7
13	.98438	1002.0	46	.95587	1015.8	79	.88383	1020.8
14	.98354	1002.3	47	.95428	1016.1	80	.88116	1021.0
15	.98282	1002.6	48	.95257	1016.3	81	.87848	1021.2
16	.98216	1003.0	49	.95085	1016.5	82	.87575	1021.4
17	.98151	1003.4	50	.94911	1016.7	83	.87302	1021.6
18	.98085	1003.8	51	.94733	1016.9	84	.87013	1021.7
19	.98030	1004.3	52	.94555	1017.2	85	.86713	1021.7
20	.97978	1004.8	53	.94371	1017.4	86	.86413	1021.7
21	.97927	1005.3	54	.94173	1017.5	87	.86107	1021.8
22	.97874	1005.8	55	.93968	1017.6	88	.85796	1021.9
23	.97813	1006.3	56	.93769	1017.7	89	.85485	1022.1
24	.97751	1006.7	57	.93569	1017.9	90	.85157	1022.2
25	.97690	1007.1	58	.93365	1018.1	91	.84817	1022.3
26	.97631	1007.6	59	.93156	1018.2	92	.84478	1022.3
27	.97572	1008.1	60	.92938	1018.3	93	.84137	1022.4
28	.97513	1008.6	61	.92725	1018.5	94	.83762	1022.6
29	.97451	1009.1	62	.92512	1018.7	95	.83373	1022.6
30	.97389	1009.7	63	.92290	1018.8	96	.82970	1022.7
31	.97325	1010.2	64	.92068	1018.9	97	.82553	1022.8
32	.97245	1010.8	65	.91845	1019.0	98	.82123	1022.9
33	.97166	1011.2	66	.91622	1019.2	99	.81678	1023.0
						100	.81222	1023.1

TABLE VIII—Continued.

Temperature 21°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99776	1000.1	34	.97053	1011.3	67	.91359	1019.0
2	.99644	1000.2	35	.96958	1011.8	68	.91114	1019.0
3	.99510	1000.2	36	.96863	1012.2	69	.90868	1019.0
4	.99377	1000.4	37	.96770	1012.8	70	.90628	1019.1
5	.99243	1000.5	38	.96677	1013.3	71	.90390	1019.3
6	.99129	1000.6	39	.96547	1013.6	72	.90142	1019.4
7	.99019	1000.7	40	.96415	1013.8	73	.89893	1019.5
8	.98912	1000.9	41	.96280	1014.1	74	.89639	1019.6
9	.98803	1001.0	42	.96145	1014.4	75	.89383	1019.8
10	.98695	1001.2	43	.95999	1014.6	76	.89125	1019.9
11	.98608	1001.4	44	.95853	1014.9	77	.88866	1020.0
12	.98524	1001.7	45	.95706	1015.2	78	.88606	1020.2
13	.98440	1002.0	46	.95552	1015.4	79	.88340	1020.3
14	.98355	1002.3	47	.95392	1015.7	80	.88072	1020.5
15	.98282	1002.6	48	.95221	1015.9	81	.87804	1020.7
16	.98215	1003.0	49	.95048	1016.1	82	.87530	1020.9
17	.98149	1003.4	50	.94874	1016.3	83	.87257	1021.1
18	.98082	1003.8	51	.94696	1016.5	84	.86968	1021.2
19	.98025	1004.2	52	.94517	1016.8	85	.86668	1021.2
20	.97972	1004.7	53	.94332	1017.0	86	.86369	1021.2
21	.97920	1005.2	54	.94134	1017.1	87	.86062	1021.3
22	.97865	1005.7	55	.93929	1017.2	88	.85751	1021.4
23	.97803	1006.2	56	.93730	1017.3	89	.85440	1021.6
24	.97740	1006.6	57	.93530	1017.5	90	.85112	1021.7
25	.97677	1007.1	58	.93325	1017.7	91	.84772	1021.7
26	.97617	1007.5	59	.93116	1017.8	92	.84433	1021.8
27	.97557	1007.9	60	.92898	1017.9	93	.84093	1021.9
28	.97496	1008.4	61	.92685	1018.1	94	.83718	1022.0
29	.97433	1008.9	62	.92471	1018.2	95	.83329	1022.1
30	.97369	1009.5	63	.92249	1018.3	96	.82925	1022.2
31	.97304	1010.0	64	.92027	1018.4	97	.82509	1022.2
32	.97223	1010.5	65	.91804	1018.5	98	.82079	1022.4
33	.97142	1010.9	66	.91581	1018.7	99	.81634	1022.4
						100	.81178	1022.5

TABLE VIII—Continued.

Temperature 22°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99784	1000.2	34	.97028	1011.1	67	.91317	1018.5
2	.99651	1000.3	35	.96932	1011.5	68	.91073	1018.5
3	.99517	1000.3	36	.96836	1011.9	69	.90826	1018.5
4	.99383	1000.4	37	.96741	1012.5	70	.90586	1018.7
5	.99249	1000.5	38	.96647	1013.0	71	.90347	1018.8
6	.99134	1000.6	39	.96516	1013.3	72	.90099	1019.0
7	.99024	1000.8	40	.96384	1013.4	73	.89851	1019.0
8	.98917	1001.0	41	.96248	1013.7	74	.89597	1019.1
9	.98807	1001.1	42	.96112	1014.0	75	.89340	1019.3
10	.98699	1001.3	43	.95966	1014.3	76	.89082	1019.4
11	.98611	1001.4	44	.95820	1014.5	77	.88823	1019.5
12	.98526	1001.7	45	.95672	1014.8	78	.88563	1019.7
13	.98441	1002.0	46	.95517	1015.1	79	.88296	1019.8
14	.98356	1002.3	47	.95357	1015.3	80	.88028	1020.0
15	.98282	1002.6	48	.95185	1015 5	81	.87760	1020.2
16	.98214	1003.0	49	.95012	1015.7	82	.87485	1020.4
17	.98147	1003.4	50	.94837	1015.9	83	.87212	1020.5
18	.98079	1003.7	51	.94658	1016.1	84	.86923	1020.6
19	.98021	1004.2	52	.94479	1016.4	85	.86623	1020.6
20	.97966	1004.7	53	.94294	1016.6	86	.86324	1020.6
21	.97912	1005.1	54	.94096	1016.7	87	.86017	1020.7
22	.97857	1005.6	55	.93891	1016.8	88	.85706	1020.9
23	.97793	1006.1	56	.93691	1016.9	89	.85395	1021.0
24	.97729	1006.5	57	.93490	1017.1	90	.85067	1021.1
25	.97664	1006.9	58	.93285	1017.2	91	.84727	1021.2
26	.97603	1007.3	59	.93076	1017.3	92	.84388	1021.2
27	.97541	1007.8	60	.92858	1017 5	93	.84048	1021.3
28	.97479	1008.2	61	.92644	1017.6	94	.83673	1021.5
29	.97415	1008.7	62	.92430	1017.8	95	.83284	1021.5
30	.97349	1009.3	63	.92209	1017.9	96	.82880	1021.6
31	.97283	1009.8	64	.91986	1018.0	97	.82464	1021.7
32	.97200	1010.3	65	.91763	1018.1	98	.82035	1021.8
33	.97118	1010.7	66	.91539	1018.3	99	.81590	1021.9
						100	.81134	1022.0

TABLE VIII—Continued.

Temperature 23°.

Per cent. Volume.	Density.	Volume. Per cent.	Per cent. Volume.	Density.	Volume. Per cent.	Per cent. Volume.	Density.	Volume. Per cent.
1	.99793	1000.2	34	.97004	1010.8	67	.91275	1018.1
2	.99659	1000.3	35	.96906	1011.3	68	.91031	1018.1
3	.99524	1000.3	36	.96808	1011.7	69	.90785	1018.1
4	.99390	1000.5	37	.96713	1012.2	70	.90545	1018.2
5	.99256	1000.6	38	.96617	1012.7	71	.90305	1018.4
6	.99140	1000.7	39	.96486	1012.9	72	.90057	1018.5
7	.99030	1000.8	40	.96352	1013.1	73	.89808	1018 6
8	.98921	1001.0	41	.96217	1013.4	74	.89554	1018.7
9	.98812	1001.1	42	.96080	1013.7	75	.89298	1018.8
10	.98702	1001.3	43	.95933	1013.9	76	.89040	1018.9
11	.98615	1001.5	44	.95786	1014.2	77	.88779	1019.0
12	.98529	1001.8	45	.95637	1014.5	78	.88519	1019.2
13	.98443	1002.1	46	.95482	1014.7	79	.88253	1019.3
14	.98357	1002.3	47	.95321	1015.0	80	.87985	1019.4
15	.98281	1002.6	48	.95149	1015.2	81	.87715	1019.6
16	.98213	1002.9	49	.94975	1015.3	82	.87441	1019.8
17	.98144	1003.3	50	.94799	1015.5	83	.87167	1020.0
18	.98075	1003.7	51	.94621	1015.7	84	.86878	1020.1
19	.98016	1004.1	52	.94440	1015.9	85	.86579	1020.1
20	.97961	1004.6	53	.94255	1016.1	86	.86280	1020.1
21	.97905	1005.1	54	.94057	1016.2	87	.85973	1020.2
22	.97848	1005.6	55	.93852	1016.3	88	.85662	1020.3
23	.97783	1005.9	56	.93653	1016.4	89	.85351	1020.5
24	.97717	1006.3	57	.93451	1016.7	90	.85022	1020.6
25	.97652	1006.7	58	.93246	1016.8	91	.84683	1020.6
26	.97589	1007.2	59	.93036	1016.9	92	.84344	1020.7
27	.97526	1007.6	60	.92818	1017.0	93	.84003	1020.8
28	.97463	1008.1	61	.92604	1017.2	94	.83628	1020.9
29	.97396	1008.6	62	.92390	1017.3	95	.83239	1021.0
30	.97330	1009.1	63	.92168	1017.4	96	.82835	1021.1
31	.97261	1009 5	64	.91945	1017.5	97	.82419	1021.1
32	.97178	1010.0	65	.91721	1017.6	98	.81991	1021.3
33	.97095	1010.4	66	.91498	1017.8	99	.81546	1021.3
						100	.81090	1021.4

TABLE VIII—Continued.

Temperature 24°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99801	1000.3	34	.96979	1010.6	67	.91233	1017.6
2	.99666	1000.4	35	.96880	1010.9	68	.90990	1017.6
3	.99531	1000.4	36	.96781	1011.4	69	.90743	1017.6
4	.99396	1000.5	37	.96684	1011.9	70	.90503	1017.8
5	.99262	1000.6	38	.96587	1012.4	71	.90262	1017.9
6	.99145	1000.7	39	.96455	1012.6	72	.90014	1018.1
7	.99035	1000.9	40	.96321	1012.7	73	.89766	1018.1
8	.98926	1001.1	41	.96185	1013.0	74	.89512	1018.2
9	.98816	1001.2	42	.96047	1013.3	75	.80255	1018.3
10	.98706	1001.4	43	.95900	1013.6	76	.88997	1018.4
11	.98618	1001.5	44	.95753	1013.8	77	.88736	1018.5
12	.98531	1001.8	45	.95603	1014.1	78	.88476	1018.7
13	.98444	1002.1	46	.95447	1014.4	79	.88209	1018.8
14	.98358	1002.3	47	.95286	1014.6	80	.87941	1018.9
15	.98281	1002.6	48	.95113	1014.8	81	.87671	1019.1
16	.98212	1002.9	49	.94939	1014.9	82	.87396	1019.3
17	.98142	1003.3	50	.94762	1015.1	83	.87122	1019.4
18	.98072	1003.6	51	.94583	1015.3	84	.86833	1019.5
19	.98012	1004.1	52	.94402	1015.5	85	.86534	1019.5
20	.97955	1004.6	53	.94217	1015.7	86	.86235	1019.5
21	.97897	1005.0	54	.94019	1015.8	87	.85928	1019.6
22	.97840	1005.5	55	.93814	1015.9	88	.85617	1019.8
23	.97773	1005.8	56	.93614	1016.0	89	.85306	1019.9
24	.97706	1006.2	57	.93411	1016.2	90	.84977	1020.0
25	.97639	1006.6	58	.93206	1016.3	91	.84638	1020.1
26	.97575	1007.0	59	.92996	1016.4	92	.84299	1020.1
27	.97510	1007.5	60	.92778	1016.6	93	.83958	1020.2
28	.97446	1007.9	61	.92563	1016.7	94	.83583	1020.4
29	.97378	1008.4	62	.92349	1016.9	95	.83294	1020.4
30	.97310	1008.9	63	.92128	1017.0	96	.82790	1020.5
31	.97240	1009.3	64	.91904	1017.1	97	.82374	1020.6
32	.97155	1009.8	65	.91680	1017.2	98	.81947	1020.7
33	.97071	1010.2	66	.91456	1017.4	99	.81501	1020.8
						100	.81045	1020.9

TABLE VIII—Continued.

Temperature 25°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99809	1000 4	34	.96954	1010. 3	67	.91191	1017.1
2	.99674	1000.5	35	.96854	1010.7	68	.90948	1017.1
3	.99538	1000.5	36	.96754	1011.1	69	.90702	1017.1
4	.99403	1000 6	37	.96656	1011.6	70	.90461	1017.3
5	.99268	1000.7	38	.96557	1012.1	71	.90220	1017.4
6	.99151	1000.8	39	.96425	1012.3	72	.89972	1017.6
7	.99040	1000.9	40	.96290	1012.4	73	.89723	1017.6
8	.98931	1001.1	41	.96153	1012.7	74	.89469	1017.7
9	.98820	1001.2	42	.96015	1013.0	75	.89212	1017.8
10	.98710	1001 4	43	95867	1013.2	76	.88954	1017.9
11	.98621	1001.6	44	.95719	1013.5	77	.88693	1018.0
12	.98533	1001.8	45	.95568	1013 7	78	.88433	1018.2
13	.98446	1002.1	46	.95412	1014.0	79	.88166	1018.3
14	.98359	1002.3	47	.95250	1014.2	80	.87897	1018.4
15	.98281	1002.6	48	.95077	1014.4	81	.87627	1018.6
16	.98211	1002.9	49	.94902	1014.5	82	.87351	1018.8
17	.98140	1003.3	50	.94725	1014.7	83	.87077	1018.9
18	.98069	1003.6	51	.94546	1014.9	84	.86788	1019.0
19	.98007	1004.0	52	.94364	1015.1	85	.86489	1019 0
20	.97949	1004.5	53	.94178	1015.3	86	.86191	1019 0
21	.97890	1004.9	54	.93980	1015.4	87	.85883	1019.1
22	.97831	1005.4	55	.93775	1015.5	88	.85572	1019 3
23	.97763	1005.7	56	.93575	1015.6	89	.85261	1019 4
24	.97695	1006.1	57	.93372	1015.8	90	.84932	1019.5
25	.97626	1006.5	58	.93166	1015.9	91	.84593	1019.5
26	.97561	1006 9	59	.92956	1016.0	92	.84254	1019.6
27	.97495	1007.3	60	.92738	1016.2	93	.83913	1019 7
28	.97429	1007.7	61	.92523	1016.3	94	.83538	1019.8
29	.97360	1008.2	62	.92308	1016.4	95	.83149	1019.9
30	.97290	1008.7	63	.92087	1016.5	96	.82745	1020.0
31	.97219	1009.1	64	.91863	1016.6	97	.82329	1020.0
32	.97133	1009.5	65	.91639	1016.7	98	.81902	1020.2
33	.97047	1009.9	66	.91415	1016.9	99	.81456	1020.2
						100	.81000	1020.3

TABLE VIII—Continued.

Temperature 26°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99816	1000.5	34	.96928	1010.0	67	.91149	1016.6
2	.99680	1000.6	35	.96827	1010.4	68	.90906	1016.6
3	.99544	1000.6	36	.96726	1010.8	69	.90660	1016.6
4	.99408	1000.7	37	.96627	1011.3	70	.90419	1016.8
5	.99272	1000.7	38	.96526	1011.8	71	.90177	1016.9
6	.99155	1000.8	39	.96394	1012.0	72	.89929	1017.1
7	.99043	1000.9	40	.96258	1012.1	73	.89680	1017.1
8	.98934	1001.1	41	.96121	1012.4	74	.89426	1017.2
9	.98822	1001.2	42	.95982	1012.6	75	.89169	1017.3
10	.98712	1001.4	43	.95833	1012.8	76	.88911	1017.4
11	.98622	1001.6	44	.95685	1013.1	77	.88650	1017.5
12	.98534	1001.8	45	.95533	1013.3	78	.88389	1017.7
13	.98446	1002.1	46	.95376	1013.6	79	.88122	1017.8
14	.98358	1002.3	47	.95214	1013.8	80	.87853	1017.9
15	.98279	1002.6	48	.95040	1014.0	81	.87582	1018.1
16	.98208	1002.9	49	.94865	1014.1	82	.87306	1018.3
17	.98136	1003.3	50	.94687	1014.3	83	.87032	1018.4
18	.98064	1003.6	51	.94508	1014.5	84	.86743	1018.5
19	.98001	1003.9	52	.94326	1014.7	85	.86444	1018.5
20	.97941	1004.4	53	.94139	1014.9	86	.86146	1018.5
21	.97881	1004.8	54	.93941	1015.0	87	.85838	1018.6
22	.97821	1005.3	55	.93736	1015.1	88	.85527	1018.8
23	.97752	1005.6	56	.93536	1015.2	89	.85216	1018.9
24	.97682	1006.0	57	.93332	1015.4	90	.84887	1019.0
25	.97612	1006.3	58	.93126	1015.5	91	.84548	1019.0
26	.97546	1006.7	59	.92916	1015.6	92	.84209	1019.1
27	.97478	1007.1	60	.92697	1015.7	93	.83868	1019.2
28	.97411	1007.5	61	.92482	1015.9	94	.83493	1019.3
29	.97341	1008.0	62	.92267	1015.9	95	.83104	1019.3
30	.97269	1008.5	63	.92046	1016.1	96	.82700	1019.4
31	.97197	1008.9	64	.91822	1816.1	97	.82284	1019.5
32	.97109	1009.3	65	.91597	1016.2	98	.81857	1019.6
33	.97022	1009.6	66	.91373	1016.4	99	.81412	1019.6
						100	.80956	1019.7

TABLE VIII—Continued.

Temperature 27°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99823	1000.6	34	.96902	1009.8	67	.91106	1016.2
2	.99687	1000 6	35	.96800	1010.1	68	.90864	1016.2
3	.99550	1000.6	36	.96698	1010.5	69	.90618	1016.2
4	.99413	1000.7	37	.96597	1011.0	70	.90376	1016.3
5	.99276	1000.8	38	.96495	1011.5	71	.90135	1016.4
6	.99158	1000.9	39	.96362	1011.6	72	.89886	1016.6
7	.99046	1001.0	40	.96227	1011.8	73	.89637	1016.6
8	.98936	1001.1	41	.96088	1012.0	74	.89383	1016.7
9	.98825	1001.3	42	.95948	1012.3	75	.89126	1016.8
10	.98714	1001.4	43	.95800	1012.5	76	.88868	1016.9
11	.98623	1001.6	44	.95650	1012.8	77	.88606	1017.0
12	.98534	1001.8	45	.95498	1013.0	78	.88345	1017.2
13	.98446	1002.1	46	.95340	1013 2	79	.88078	1017.3
14	.98357	1002.3	47	.95178	1013.4	80	.87809	1017.4
15	.98277	1002.6	48	.95004	1013.6	81	.87537	1017.6
16	.98205	1002.9	49	.94828	1013.7	82	.87261	1017.7
17	.98132	1003.2	50	.94650	1013.9	83	.86986	1017.8
18	.98059	1003.5	51	.94470	1014.1	84	.86697	1018.0
19	.97994	1003.9	52	.94287	1014.3	85	.86399	1018.0
20	.97934	1004.3	53	.94100	1014.5	86	.86101	1018.0
21	.97872	1004.7	54	.93902	1014.6	87	.85794	1018.1
22	.97811	1005.2	55	.93697	1014.7	88	.85482	1018.2
23	.97740	1005.5	56	.93496	1014.8	89	.85170	1018.3
24	.97669	1005.8	57	.93292	1014.9	90	.84842	1018.4
25	.97598	1006.2	58	.93086	1015.1	91	.84503	1018.4
26	.97530	1006.6	59	.92875	1015.1	92	.84164	1018.5
27	.97462	1006.9	60	.92657	1015.3	93	.83823	1018.6
28	.97393	1007.3	61	.92442	1015.4	94	.83448	1018.7
29	.97321	1007.8	62	.92226	1015.5	95	.83059	1018.8
30	.97248	1008.3	63	.92004	1015.6	96	.82655	1018.9
31	.97174	1008.7	64	.91780	1015.7	97	.82239	1018.9
32	.97086	1009.0	65	.91556	1015.8	98	.81812	1019.0
33	.96997	1009.4	66	.91331	1016.0	99	.81367	1019.1
						100	.80911	1019.1

TABLE VIII—Continued.

Temperature 28°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99831	1000.6	34	.96877	1009.5	67	.91064	1015.7
2	.99693	1000.7	35	.96774	1009.9	68	.90821	1015.7
3	.99555	1000.7	36	.96671	1010.2	69	.90576	1015.7
4	.99418	1000.8	37	.96568	1010.6	70	.90334	1015.9
5	.99281	1000.8	38	.96465	1011 1	71	.90092	1016.0
6	.99162	1000.9	39	.96331	1011.3	72	.89844	1016.1
7	.99050	1001.0	40	.96195	1011.4	73	.89594	1016.2
8	.98939	1001.2	41	.96056	1011.7	74	.89339	1016.3
9	.98827	1001.3	42	.95915	1011.9	75	.89082	1016.4
10	.98715	1001.5	43	.95766	1012.1	76	.88824	1016.4
11	.98625	1001.6	44	.95616	1012.4	77	.88563	1016.5
12	.98535	1001.9	45	.95463	1012.6	78	.88302	1016.6
13	.98445	1002.1	46	.95305	1012.9	79	.88034	1016.8
14	.98356	1002.3	47	.95141	1013 1	80	.87764	1016.9
15	.98276	1002.5	48	.94967	1013.2	81	.87493	1017.0
16	.98202	1002.8	49	.94790	1013.3	82	.87217	1017.2
17	.98127	1003.2	50	.94612	1013.5	83	.86941	1017.3
18	.98053	1003 5	51	.94432	1013.6	84	.86652	1017 4
19	.97988	1003.8	52	.94249	1013.9	85	.86354	1017 4
20	.97926	1004.3	53	.94061	1014 0	86	.86057	1017.4
21	.97864	1004.7	54	.93862	1014 1	87	.85749	1017.5
22	.97800	1005 1	55	.93658	1014.2	88	.85137	1017.7
23	.97729	1005.4	56	.93457	1014.3	89	.85125	1017 8
24	.97657	1005.7	57	.93253	1014.5	90	.84796	1017.9
25	.97585	1006.0	58	.93045	1014.6	91	.84457	1017.9
26	.97515	1006 4	59	.92835	1014.6	92	.84118	1018.0
27	.97445	1006.8	60	.92616	1014.8	93	.83778	1018.1
28	.97375	1007.2	61	.92401	1015 0	94	.83403	1018.2
29	.97302	1007.6	62	.92186	1015.1	95	.83014	1018.2
30	.97228	1008.0	63	.91963	1015.2	96	.82610	1018 3
31	.97152	1008.4	64	.91739	1015.2	97	.82194	1018.4
32	.97062	1008.8	65	.91514	1015.3	98	.81766	1018.5
33	.96973	1009.1	66	.91289	1015.5	99	.81322	1018 5
						100	.80866	1018.5

TABLE VIII—Continued.

Temperature 29°.

Per cent.	Volume.	Density.	Per cent.	Volume.	Density.	Per cent.	Volume.	Density.
1	1000.7	.99838	34	1009.1	.96851	67	1015.3	.91031
2	1000.7	.99700	35	1009.6	.96747	68	1015.3	.90779
3	1000.7	.99561	36	1009.9	.96643	69	1015.3	.90534
4	1000.8	.99423	37	1010.3	.96538	70	1015.4	.90291
5	1000.9	.99285	38	1010.8	.96434	71	1015.5	.90050
6	1001.0	.99165	39	1010.9	.96299	72	1015.6	.89801
7	1001.1	.99053	40	1011.1	.96164	73	1015.7	.89551
8	1001.2	.98941	41	1011.3	.96023	74	1015.8	.89296
9	1001.4	.98830	42	1011.6	.95881	75	1015.9	.89039
10	1001 5	.98717	43	1011.8	.95733	76	1015.9	.88781
11	1001.7	.98626	44	1012.1	.95581	77	1016.0	.88519
12	1001.9	.98535	45	1012.2	.95428	78	1016.1	.88258
13	1002.1	.98445	46	1012.5	.95269	79	1016 3	.87990
14	1002.3	.98355	47	1012.7	.95105	80	1016.4	.87720
15	1002.5	.98274	48	1012.8	.94931	81	1016 5	.87443
16	1002.8	.98199	49	1012.9	.94753	82	1016.6	.87172
17	1003.1	.98123	50	1013.1	.94575	83	1016.8	.86895
18	1003.4	.98048	51	1013.2	.94394	84	1016.9	.86606
19	1003.8	.97981	52	1013 5	94210	85	1016.9	.86309
20	1004.2	.97919	53	1013.6	.94022	86	1016.9	.86012
21	1004.6	.97855	54	1013 7	.93823	87	1017.0	.85705
22	1005.0	.97790	55	1013.8	.93619	88	1017.1	.85392
23	1005 3	.97717	56	1013 9	.93417	89	1017.2	.85079
24	1005.5	.97644	57	1614 0	.93213	90	1017.3	.84751
25	1005.9	.97571	58	1014.2	.93005	91	1017.3	.84412
26	1006.3	.97499	59	1014 2	.92794	92	1017.4	.84073
27	1006.6	.97429	60	1014.4	.92576	93	1017.5	.83733
28	1007.0	.97357	61	1014.5	.92361	94	1017.6	.83359
29	1007 4	.97282	62	1014.6	.92145	95	1017.7	.82968
30	1007.8	.97207	63	1014.7	.91921	96	1017.8	.82565
31	1008.2	.97129	64	1014.8	.91697	97	1017.8	.82149
32	1008.5	.97039	65	1014 9	.91473	98	1017.9	.81720
33	1008.9	.96948	66	1015.1	.91247	99	1018.0	.81277
						100	1018.0	.80821

TABLE VIII—Continued.

Temperature 30°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99845	1000 8	34	.96825	1009.0	67	.90979	1014.8
2	.99706	1000.8	35	.96720	1009 3	68	.90737	1014.8
3	.99567	1000.8	36	.96615	1009.6	69	.90492	1014.8
4	.99428	1000.9	37	.96509	1010.0	70	.90219	1014.9
5	.99289	1000.9	38	.96403	1010.5	71	.90007	1015.0
6	.99169	1001.0	39	.96268	1010.6	72	.89758	1015.1
7	.99056	1001.1	40	.96132	1010.8	73	.89508	1015.2
8	.98944	1001.2	41	.95991	1011.0	74	.89253	1015.3
9	.98832	1001.4	42	.95848	1011.2	75	.88996	1015.4
10	.98719	1001.5	43	.95699	1011.4	76	.88738	1015.4
11	.98627	1001.7	44	.95547	1011.7	77	.88476	1015.5
12	.98536	1001.9	45	.95393	1011.9	78	.8-214	1015.6
13	.98445	1002.1	46	.95233	1512.1	79	.87946	1015.8
14	.98354	1002.3	47	.95069	1012.3	80	.87676	1015.9
15	.98272	1002.5	48	.94894	1012.4	81	.87403	1016.0
16	.98196	1002.8	49	.94716	1012.5	82	.87127	1016.1
17	.98119	1003.1	50	.94537	1012.7	83	.86850	1016.3
18	.98043	1003.4	51	.94356	1012.8	84	.86561	1016.4
19	.97975	1003.7	52	.94172	1013.1	85	.86264	1016.4
20	.97911	1004.1	53	.93983	1013.2	86	.85967	1016.4
21	.97846	1004.5	54	.93784	1013.3	87	.85660	1016.5
22	.97780	1004.9	55	.93580	1013.4	88	.85347	1016.6
23	.97706	1005.2	56	.93378	1013.5	89	.85034	1016.7
24	.97631	1005.4	57	.93173	1013.6	90	.84706	1016.8
25	.97557	1005.7	58	.92965	1013.8	91	.84367	1016.8
26	.97484	1006.1	59	.92754	1013.8	92	.84028	1016.9
27	.97412	1006.4	60	.92535	1013.9	93	.836-7	1017.0
28	.97339	1006.8	61	.92320	1014.1	94	.83312	1017.1
29	.97263	1007.2	62	.92104	1014.2	95	.82922	1017.1
30	.97186	1007.6	63	.918-0	1014.3	96	.8-520	1017.2
31	.97107	1008.0	64	.91656	1014.3	97	.82103	1017.2
32	.97015	1008.3	65	.91431	1014.4	98	.81674	1017.3
33	.96923	1008.6	66	.91205	1014.6	99	.81232	1017.4
						100	.80776	1017.4

TABLE VIII—Continued.

Temperature 31°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99848	1000.8	34	.96798	1008.7	67	.90936	1014.3
2	.99709	1000.8	35	.96693	1009.0	68	.90694	1014.3
3	.99569	1000.8	36	.96587	1009.3	69	.90449	1014.3
4	.99430	1000.9	37	.96479	1009.7	70	.90206	1014.4
5	.99291	1000.9	38	.96372	1010.2	71	.89964	1014.5
6	.99171	1001.0	39	.96236	1010.3	72	.89715	1014.6
7	.99057	1001.1	40	.96099	1010.5	73	.89465	1014.7
8	.98945	1001.2	41	.95958	1010.6	74	.89209	1014.8
9	.98832	1001.4	42	.95814	1010.8	75	.88952	1014.9
10	.98719	1001.5	43	.95665	1011.0	76	.88694	1011.9
11	.98626	1001.7	44	.95512	1011.3	77	.88432	1015.0
12	.98535	1001.9	45	.95357	1011.5	78	.88170	1015.1
13	.98443	1002.1	46	.95197	1011.7	79	.87902	1015.3
14	.98351	1002.3	47	.95032	1011.9	80	.87631	1015.4
15	.98268	1002.5	48	.94857	1012.0	81	.87358	1015.5
16	.98191	1002.8	49	.94678	1012.1	82	.87082	1015.6
17	.98113	1003.0	50	.94499	1012.3	83	.86804	1015.8
18	.98036	1003.3	51	.94318	1012.4	84	.86515	1015.9
19	.97967	1003.6	52	.94133	1012.7	85	.86218	1015.9
20	.97902	1004.0	53	.93943	1012.8	86	.85922	1015.9
21	.97836	1004.4	54	.93744	1012.9	87	.85614	1016.0
22	.97768	1004.8	55	.93540	1013.0	88	.85302	1016.1
23	.97693	1005.1	56	.93338	1013.1	89	.84988	1016.1
24	.97617	1005.3	57	.93132	1013.2	90	.84660	1016.2
25	.97542	1005.6	58	.92924	1013.3	91	.84321	1016.3
26	.97467	1005.9	59	.92713	1013.4	92	.83982	1016.3
27	.97394	1006.2	60	.92494	1013.5	93	.83642	1016.4
28	.97320	1006.6	61	.92279	1013.6	94	.83267	1016.5
29	.97243	1007.0	62	.92062	1013.7	95	.82877	1016.5
30	.97164	1007.4	63	.91838	1013.8	96	.82475	1016.6
31	.97084	1007.8	64	.91614	1013.8	97	.82058	1016.6
32	.96991	1008.1	65	.91389	1013.9	98	.81629	1016.7
33	.96898	1008.3	66	.91162	1014.1	99	.81187	1016.8
						100	.80731	1016.8

TABLE VIII—Continued.

Temperature 32°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99851	1000.8	34	.96772	1008.4	67	.90893	1013.8
2	.99711	1000.8	35	.96665	1008.7	68	.90651	1013.8
3	.99572	1000.9	36	.96558	1009.0	69	.90407	1013.8
4	.99432	1000.9	37	.96449	1009.4	70	.90163	1013.9
5	.99293	1000.9	38	.96341	1009.8	71	.89920	1014.0
6	.99173	1001.0	39	.96204	1009.9	72	.89671	1014.1
7	.99059	1001.1	40	.96067	1010.1	73	.89421	1014.2
8	.98946	1001.2	41	.95924	1010.3	74	.89166	1014.3
9	.98833	1001.4	42	.95780	1010.5	75	.88908	1014.4
10	.98719	1001.5	43	.95630	1010.7	76	.88650	1014.4
11	.98625	1001.7	44	.95477	1010.9	77	.88388	1014.5
12	.98533	1001.9	45	.95321	1011.1	78	.88126	1014.6
13	.98441	1002.1	46	.95160	1011.3	79	.87857	1014.8
14	.98348	1002.2	47	.94995	1011.5	80	.87587	1014.9
15	.98265	1002.5	48	.94819	1011.6	81	.87313	1015.0
16	.98187	1002.7	49	.94641	1011.7	82	.87036	1015.1
17	.98108	1003.0	50	.94461	1011.9	83	.86758	1015.2
18	.98030	1003.2	51	.94279	1012.0	84	.86469	1015.3
19	.97959	1003.5	52	.94094	1012.2	85	.86173	1015.3
20	.97892	1003.9	53	.93904	1012.4	86	.85876	1015.3
21	.97825	1004.3	54	.93704	1012.5	87	.85569	1015.4
22	.97756	1004.6	55	.93501	1012.5	88	.85256	1015.5
23	.97680	1004.9	56	.93298	1012.6	89	.84943	1015.6
24	.97603	1005.1	57	.93092	1012.7	90	.84615	1015.7
25	.97527	1005.4	58	.92883	1012.9	91	.84276	1015.7
26	.97451	1005.7	59	.92672	1012.9	92	.83937	1015.8
27	.97376	1006.0	60	.92453	1013.0	93	.83597	1015.9
28	.97301	1006.4	61	.92237	1013.2	94	.83221	1016.0
29	.97222	1006.8	62	.92020	1013.3	95	.82832	1016.0
30	.97142	1007.1	63	.91797	1013.4	96	.82475	1016.1
31	.97061	1007.5	64	.91572	1013.4	97	.82013	1016.1
32	.96967	1007.8	65	.91347	1013.5	98	.81584	1016.2
33	.96872	1008.1	66	.91120	1013.6	99	.81142	1016.2
						100	.80686	1016.3

TABLE VIII—Continued.

Temperature 33°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99853	1000.9	34	.96745	1008.2	67	.90851	1013.4
2	.99714	1000.9	35	.96638	1008.5	68	.90609	1013.4
3	.99574	1000.9	36	.96530	1008.8	69	.90364	1013.4
4	.99435	1001.0	37	.96420	1009.1	70	.90120	1013.5
5	.99296	1001.0	38	.96309	1009.5	71	.89877	1013.6
6	.99174	1001.1	39	.96172	1009.6	72	.89628	1013.7
7	.99060	1001.2	40	.96034	1009.8	73	.89378	1013.7
8	.98947	1001.3	41	.95891	1009.9	74	.89122	1013.8
9	.98833	1001.4	42	.95747	1010.1	75	.88865	1013.8
10	.98720	1001.5	43	.95596	1010.3	76	.88606	1013.9
11	.98625	1001.6	44	.95442	1010.6	77	.88344	1014.0
12	.98532	1001.8	45	.95286	1010.8	78	.88081	1014.1
13	.98439	1002.0	46	.95124	1010.9	79	.87813	1014.2
14	.98346	1002.2	47	.94958	1011.1	80	.87542	1014.3
15	.98261	1002.4	48	.94782	1011.2	81	.87269	1014.4
16	.98182	1002.7	49	.94603	1011.3	82	.86991	1014.5
17	.98102	1002.9	50	.94423	1011.4	83	.86713	1014.7
18	.98023	1003.2	51	.94241	1011.6	84	.86424	1014.8
19	.97952	1003.5	52	.94054	1011.8	85	.86127	1014.8
20	.97883	1003.8	53	.93864	1011.9	86	.85831	1014.8
21	.97815	1004.2	54	.93665	1012.0	87	.85523	1014.9
22	.97745	1004.5	55	.93461	1012.1	88	.85211	1015.0
23	.97667	1004.8	56	.93258	1012.2	89	.84897	1015.0
24	.97589	1005.0	57	.93051	1012.3	90	.84569	1015.1
25	.97511	1005.3	58	.92843	1012.4	91	.84230	1015.2
26	.97434	1005.6	59	.92631	1012.5	92	.83891	1015.2
27	.97359	1005.9	60	.92412	1012.6	93	.83551	1015.3
28	.97282	1006.2	61	.92196	1012.7	94	.83175	1015.4
29	.97202	1006.5	62	.91979	1012.8	95	.82787	1015.4
30	.97120	1006.9	63	.91755	1012.9	96	.82384	1015.5
31	.97037	1007.3	64	.91531	1012.9	97	.81968	1015.5
32	.96942	1007.6	65	.91304	1013.0	98	.81539	1015.6
33	.96847	1007.8	66	.91077	1013.2	99	.81097	1015.7
						100	.80641	1015.7

TABLE VIII—Continued.

Temperature 34°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99856	1000.9	34	.96719	1007.9	67	.90808	1012.9
2	.99716	1000.9	35	.96610	1008.2	68	.90566	1012 9
3	.99577	1001.0	36	.96501	1008.5	69	.90322	1012.9
4	.99437	1001.0	37	.96390	1008 8	70	.90077	1013.0
5	.99298	1001.0	38	.96278	1009.1	71	.89833	1013.1
6	.99176	1001.1	39	.96140	1009.2	72	.89584	1013.2
7	.99062	1001.2	40	.96002	1009.4	73	.89334	1013.2
8	.98948	1001.3	41	.95857	1009.6	74	.89079	1013.3
9	.98834	1001.4	42	.95713	1009.8	75	.88821	1013 3
10	.98720	1001.5	43	.95561	1010.0	76	.88562	1013.4
11	.98624	1001.6	44	.95407	1010 2	77	.88300	1013.5
12	.98530	1001.8	45	.95250	1010.4	78	.88037	1013.6
13	.98437	1002.0	46	.95087	1010.5	79	.87768	1013.7
14	.98343	1002.1	47	.94921	1010.7	80	.87498	1013.8
15	.98258	1002.4	48	.94744	1010 8	81	.87224	1013 9
16	.98178	1002.6	49	.94566	1010 9	82	.86945	1014.0
17	.98097	1002.9	50	.94385	1011.0	83	.86667	1014.1
18	.98017	1003.1	51	.94202	1011.2	84	.86378	1014.2
19	.97944	1003.4	52	.94015	1011.3	85	.86082	1014.2
20	.97873	1003.7	53	.93825	1011.5	86	.85785	1014.2
21	.97804	1004.1	54	.93625	1011.6	87	.85478	1014.3
22	.97733	1004.3	55	.93422	1011.6	88	.85165	1014.4
23	.97654	1004.6	56	.93218	1011.7	89	.84852	1014.5
24	97575	1004.8	57	.93011	1011.8	90	.84524	1014.6
25	.97496	1005.1	58	.92802	1012.0	91	.84185	1014.6
26	.97418	1005.4	59	.92590	1012.0	92	.83846	1014.7
27	.97341	1005.7	60	.92371	1012.1	93	.83505	1014.8
28	.97263	1006.0	61	.92154	1012.3	94	.83129	1014.9
29	.97181	1006.3	62	.91937	1012.4	95	.82741	1015.9
30	.97098	1006.6	63	.91714	1012.5	96	.82338	1015.0
31	.97014	1007.0	64	.91489	1012.5	97	.81922	1015 0
32	.96918	1007.3	65	.91262	1012 6	98	.81594	1015.1
33	.96821	1007.6	66	.91035	1012.7	99	.81052	1015.1
						100	.80596	1015.2

TALLE VIII—Continued.

Temperature 35°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99859	1000.9	34	.96692	1007.6	67	.90765	1012.4
2	.99719	1000.9	35	.96583	1007.9	68	.90523	1012.4
3	.99579	1001.0	36	.96473	1008.2	69	.90279	1012.4
4	.99439	1001.0	37	.96360	1008.5	70	.90034	1012.5
5	.99300	1001.0	38	.96247	1008.8	71	.89790	1012.6
6	90178	1001.1	39	.96108	1008.9	72	.89541	1012.7
7	.99063	1001.2	40	.95969	1009.1	73	.89291	1012.7
8	.98949	1001.3	41	.95824	1009.2	74	.89035	1012.8
9	.98834	1001.4	42	.95679	1009.4	75	.88777	1012.8
10	.98720	1001.5	43	.95527	1009.6	76	.88518	1012 9
11	.98623	1001.6	44	.95372	1009.8	77	.88256	1013.0
12	.98529	1001.8	45	.95214	1010.0	78	.87993	1013.1
13	98435	1002.0	46	.95051	1010.1	79	.87724	1013.2
14	.98340	1002.1	47	.94884	1010.3	80	.87453	1013.3
15	.98254	1002.4	48	.94707	1010.4	81	.87179	1013.4
16	.98173	1002.6	49	.94528	1010.5	82	.86900	1013.5
17	.98091	1002.8	50	.94347	1010.6	83	.86621	1013.6
18	98010	1003.0	51	.94164	1010.8	84	.86332	1013.7
19	.97936	1003.3	52	.93976	1010.9	85	.86036	1013.7
20	.97864	1003.6	53	.93785	1011.1	86	.85740	1013.7
21	.97794	1004.0	54	.93585	1011.2	87	.85432	1013.8
22	.97721	1004.2	55	.93382	1011.2	88	.85120	1013.9
23	.97641	1004.5	56	.93178	1011.3	89	.84806	1013.9
24	.97561	1004.7	57	.92970	1011.4	90	.84478	1014.0
25	.97481	1005.0	58	.92761	1011.5	91	.84139	1014.1
26	.97401	1005.2	59	.92549	1011.6	92	.83800	1014.1
27	.97323	1105.5	60	.92330	1011.7	93	.83459	1014.2
28	.97244	1005.8	61	.92113	1011.8	94	.83083	1014.3
29	.97161	1006.1	62	.91895	1011.9	95	.82695	1014.3
30	.9 076	1006.4	63	.91672	1012.0	96	.82292	1014.4
31	.96991	1006.8	64	.91447	1012.0	97	.81876	1014.4
32	.96894	1007.1	65	.91220	1012.1	98	.81448	1014.5
33	.96796	1007.3	66	.90992	1012.2	99	.81006	1014.5
						100	.80550	1014.6

TABLE VIII—Continued.

Temperature 36°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99859	1000.9	34	.96665	1007.3	67	.90722	1011.9
2	.99719	1000 9	35	.96555	1007 6	68	.90480	1011.9
3	.99579	1001.0	36	.96443	1007.9	69	.90236	1011.9
4	.99439	1001.0	37	.96329	1008.2	70	.89991	1012.0
5	.99300	1001.0	38	.96215	1008.5	71	.89746	1012.1
6	.99178	1001.1	39	.96075	1008.6	72	.89497	1012.2
7	.99062	1001.2	40	.95936	1008.7	73	.89247	1012.2
8	.98948	1001.3	41	.95790	1008.9	74	.88991	1012.3
9	.98832	1001.4	42	.95645	1009.0	75	.88733	1012.3
10	.98718	1001.5	43	.95492	1009.2	76	.88474	1012.4
11	.98621	1001.6	44	.95336	1009.4	77	.88211	1012.5
12	.98526	1001.8	45	.95178	1009.6	78	.87948	1012.6
13	.98431	1002.0	46	.95014	1009.7	79	.87679	1012.7
14	.98335	1002.1	47	.94847	1009.9	80	.87408	1012.8
15	.98249	1002.3	48	.94669	1010.0	81	.87134	1012.9
16	.98167	1002.5	49	.94490	1010.1	82	.86854	1013.0
17	.98084	1002.7	50	.94308	1010.2	83	.86575	1013.1
18	.98002	1002 9	51	.94125	1010.4	84	.86286	1013.2
19	.97926	1003.2	52	.93936	1010.5	85	.85990	1013 2
20	.97853	1003 5	53	.93745	1010.7	86	.85694	1013.2
21	.97782	1003.9	54	.93545	1010.8	87	.85386	1013.3
22	.97708	1004.1	55	.93342	1010.8	88	.85074	1013.3
23	.97627	1004.3	56	.93137	1010.9	89	.84750	1013.4
24	.97545	1004.5	57	.92929	1011.0	90	.84432	1013.5
25	.97464	1004.8	58	.92720	1011.1	91	.84093	1013.5
26	.97383	1005.0	59	.92508	1011.1	92	.83754	1013.5
27	.97304	1005.3	60	.92289	1011.2	93	.83413	1013.6
28	.97224	1005.6	61	.92071	1011.3	94	.83037	1013.7
29	.97139	1005.9	62	.91853	1011.4	95	.82649	1013.7
30	.97053	1006.2	63	.91630	1011 5	96	.82247	1013.8
31	.96967	1006.5	64	.91404	1011.5	97	.81831	1013.8
32	.96869	1006.8	65	.91177	1011.6	98	.81403	1013.9
33	.96770	1007.0	66	.90949	1011.7	99	.80961	1013.9
						100	.80505	1014.0

TABLE VIII—Continued.

Temperature 37°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99859	1000.9	34	.96637	1007.0	67	.90678	1011.4
2	.99719	1000.9	35	.96526	1007.3	68	.90437	1011.4
3	.99579	1001.0	36	.96414	1007.6	69	.90193	1011.4
4	.99439	1001.0	37	.96298	1007.9	70	.89948	1011.5
5	.99300	1001.0	38	.96183	1008.1	71	.89702	1011.6
6	.99177	1001.1	39	.96043	1008.2	72	.89453	1011.7
7	.99061	1001.2	40	.95903	1008.4	73	.89203	1011.7
8	.98947	1001.3	41	.95757	1008.5	74	.88947	1011.8
9	.98831	1001.4	42	.95610	1008.7	75	.88689	1011.8
10	.98716	1001.5	43	.95457	1008.9	76	.88429	1011.9
11	.98618	1001.6	44	.95301	1009.0	77	.88167	1012.0
12	.98523	1001.7	45	.95141	1009.2	78	.87904	1012.1
13	.98427	1001.9	46	.94977	1009.3	79	.87634	1012.2
14	.98331	1002.0	47	.94809	1009.5	80	.87363	1012.3
15	.98243	1002.2	48	.94631	1009.6	81	.87089	1012.4
16	.98160	1002.4	49	.94451	1009.7	82	.86809	1012.4
17	.98076	1002.6	50	.94269	1009.8	83	.86529	1012.5
18	.97993	1002.8	51	.94086	1010.0	84	.86240	1012.6
19	.97917	1003.1	52	.93897	1010.1	85	.85944	1012.6
20	.97843	1003.4	53	.93705	1010.2	86	.85649	1012.6
21	.97770	1003.7	54	.93505	1010.3	87	.85340	1012.7
22	.97695	1004.0	55	.93301	1010.4	88	.85028	1012.8
23	.97612	1004.2	56	.93097	1010.4	89	.84714	1012.8
24	.97530	1004.4	57	.92888	1010.5	90	.84386	1012.9
25	.97447	1004.6	58	.92679	1010.6	91	.84047	1013.0
26	.97365	1004.8	59	.92466	1010.7	92	.83708	1013.0
27	.97285	1005.1	60	.92247	1010.8	93	.83367	1013.1
28	.97204	1005.4	61	.92029	1010.9	94	.82991	1013.2
29	.97118	1005.7	62	.91811	1011.0	95	.82603	1013.2
30	.97030	1006.0	63	.91587	1011.0	96	.82201	1013.3
31	.96942	1006.3	64	.91362	1011.1	97	.81786	1013.3
32	.96843	1006.5	65	.91135	1011.1	98	.81358	1013.4
33	.96743	1006.8	66	.90906	1011.2	99	.80916	1013.4
						100	.80460	1013.5

TABLE VIII—Continued.

Temperature 38°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99860	1000.9	34	.96610	1006.8	67	.90635	1010.9
2	.99719	1000.9	35	.96498	1007.0	68	.90393	1011.0
3	.99580	1001.0	36	.96384	1007.2	69	.90150	1011.0
4	.99440	1001.0	37	.96268	1007.5	70	.89904	1011.1
5	.99300	1001.0	38	.96150	1007.8	71	.89659	1011.1
6	.99177	1001.1	39	.96010	1007.9	72	.89409	1011.2
7	.99061	1001.1	40	.95869	1008.0	73	.89159	1011 2
8	.98945	1001.2	41	.95723	1008.2	74	.88903	1011.3
9	.98829	1001.3	42	.95576	1008.3	75	.88645	1011.3
10	.98714	1001.4	43	.95422	1008.5	76	.88385	1011.4
11	.98616	1001.5	44	.95265	1008.7	77	.88122	1011.5
12	.98519	1001.7	45	.95105	1008.8	78	.87859	1011.5
13	.98423	1001.9	46	.94940	1009.0	79	.87590	1011.6
14	.98326	1002.0	47	.94772	1009.1	80	.87318	1011.7
15	.98238	1002.2	48	.94594	1009.2	81	.87043	1011.8
16	.98154	1002.4	49	.94413	1009.3	82	.86763	1011.9
17	.98069	1002.6	50	.94231	1009.4	83	.86484	1012.0
18	.97985	1002.8	51	.94047	1009.5	84	.86194	1012.1
19	.97907	1003.0	52	.93857	1009.6	85	.85899	1012.1
20	.97832	1003.3	53	.93664	1009.8	86	.85603	1012.1
21	.97757	1003.6	54	.93464	1009.9	87	.85295	1012.2
22	.97681	1003.8	55	.93261	1009.9	88	.84983	1012.2
23	.97598	1004.0	56	.93056	1010.0	89	.84669	1012.3
24	.97514	1004.2	57	.92848	1010.1	90	.84340	1012 4
25	.97431	1004.5	58	.92637	1010.2	91	.84001	1012.4
26	.97348	1004.7	59	.92425	1010.2	92	.83662	1012.4
27	.97266	1005.0	60	.92206	1010.3	93	.83321	1012.5
28	.97183	1005.2	61	.91988	1010.4	94	.82945	1012.6
29	.97096	1005.4	62	.91768	1010.5	95	.82557	1012.6
30	.97008	1005.7	63	.91545	1010.6	96	.82155	1012.7
31	.96918	1006.0	64	.91319	1010.6	97	.81740	1012.7
32	.96818	1006.3	65	.91092	1010.7	98	.81312	1012.8
33	.96717	1006.5	66	.90864	1010.8	99	.80870	1012.8
						100	.80415	1012.9

TABLE VIII—Continued.

Temperature 39°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99860	1000.9	34	.96582	1006.5	67	.90591	1010.4
2	.99719	1000.9	35	.96469	1006.7	68	.90350	1010.5
3	.99580	1001.0	36	.96355	1006.9	69	.90107	1010.5
4	.99440	1001.0	37	.96237	1007.2	70	.89861	1010.6
5	.99300	1001.0	38	.96118	1007.4	71	.89615	1010.6
6	.99176	1001.1	39	.95978	1007.5	72	.89365	1010.7
7	.99060	1001.1	40	.95836	1007.7	73	.89115	1010.7
8	.98944	1001.2	41	.95690	1007.8	74	.88859	1010.8
9	.98828	1001.3	42	.95541	1008.0	75	.88601	1010.8
10	.98712	1001.4	43	.95387	1008.2	76	.88340	1010.9
11	.98613	1001.5	44	.95230	1008.3	77	.88078	1011.0
12	.98516	1001.6	45	.95068	1008.4	78	.87815	1011.0
13	.98419	1001.8	46	.94903	1008.6	79	.87545	1011.1
14	.98322	1001.9	47	.94734	1008.7	80	.87273	1011.2
15	.98232	1002.1	48	.94556	1008.8	81	.86998	1011.3
16	.98147	1002.3	49	.94374	1008.9	82	.86718	1011.3
17	.98061	1002.5	50	.94192	1009.0	83	.86438	1011.4
18	.97976	1002.7	51	.94008	1009.1	84	.86148	1011.5
19	.97898	1002.9	52	.93818	1009.2	85	.85853	1011.5
20	.97822	1003.2	53	.93624	1009.3	86	.85558	1011.5
21	.97745	1003.4	54	.93424	1009.4	87	.85249	1011.6
22	.97668	1003.7	55	.93220	1009.5	88	.84937	1011.7
23	.97583	1003.9	56	.93016	1009.5	89	.84623	1011.7
24	.97499	1004.1	57	.92807	1009.6	90	.84294	1011.8
25	.97414	1004.3	58	.92596	1009.7	91	.83955	1011.9
26	.97330	1004.5	59	.92383	1009.8	92	.83616	1011.9
27	.97247	1004.8	60	.92164	1009.9	93	.83275	1012.0
28	.97163	1005.0	61	.91946	1010.0	94	.82899	1012.1
29	.97075	1005.2	62	.91726	1010.1	95	.82511	1012.1
30	.96985	1005.5	63	.91502	1010.1	96	.82109	1012.2
31	.96893	1005.8	64	.91277	1010.2	97	.81694	1012.2
32	.96792	1006.0	65	.91050	1010.2	98	.81266	1012.3
33	.96690	1006.3	66	.90821	1010.3	99	.80824	1012.3
						100	.80369	1012.4

TABLE VIII—Continued.

Temperature 40°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99860	1000.9	34	.96555	1006.2	67	.90548	1009.9
2	.99719	1000.9	35	.96441	1006.4	68	.90307	1010.0
3	.99580	1001.0	36	.96325	1006.6	69	.90064	1010.0
4	.99440	1001.0	37	.96206	1006.9	70	.89818	1010.1
5	.99300	1001.0	38	.96086	1007.1	71	.89571	1010.1
6	.99176	1001.1	39	.95945	1007.2	72	.89321	1010.2
7	.99059	1001.1	40	.95803	1007.3	73	.89071	1010.2
8	.98943	1001.2	41	.95656	1007.5	74	.88815	1010.3
9	.98826	1001.3	42	.95507	1007.6	75	.88557	1010.3
10	.98710	1001.4	43	.95352	1007.8	76	.88296	1010.4
11	.98611	1001.5	44	.95194	1007.9	77	.88033	1010.5
12	.98513	1001.6	45	.95032	1008.0	78	.87770	1010.5
13	.98415	1001.8	46	.94866	1008.2	79	.87500	1010.6
14	.98317	1001.9	47	.94697	1008.3	80	.87228	1010.7
15	.98227	1002.0	48	.94518	1008.4	81	.86953	1010.8
16	.98141	1002.2	49	.94336	1008.5	82	.86672	1010.8
17	.98054	1002.4	50	.94153	1008.6	83	.86392	1010.9
18	.97968	1002.6	51	.93969	1008.7	84	.86102	1011.0
19	.97888	1002.8	52	.93778	1008.8	85	.85807	1011.0
20	.97811	1003.1	53	.93584	1008.9	86	.85512	1011.0
21	.97733	1003.3	54	.93384	1009.0	87	.85203	1011.1
22	.97655	1003.6	55	.93180	1009.1	88	.84891	1011.1
23	.97569	1003.7	56	.92975	1009.1	89	.84577	1011.2
24	.97483	1003.9	57	.92766	1009.2	90	.84248	1011.3
25	.97397	1004.1	58	.92555	1009.3	91	.83909	1011.3
26	.97312	1004.3	59	.92342	1009.3	92	.83570	1011.3
27	.97228	1004.6	60	.92123	1009.4	93	.83229	1011.4
28	.97143	1004.8	61	.91904	1009.5	94	.82853	1011.5
29	.97053	1005.0	62	.91684	1009.6	95	.82464	1011.5
30	.96962	1005.3	63	.91460	1009.6	96	.82063	1011.6
31	.96869	1005.5	64	.91234	1009.7	97	.81648	1011.6
32	.96767	1005.7	65	.91007	1009.7	98	.81220	1011.7
33	.96664	1006.0	66	.90778	1009.8	99	.80778	1011.7
						100	.80323	1011.8

TABLE VIII—Continued.

Temperature 41°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99858	1000.9	34	.96527	1005.9	67	.90504	1009.4
2	.99718	1000.9	35	.96412	1006.1	68	.90263	1009 5
3	.99578	1001.0	36	.96295	1006.3	69	.90020	1009.5
4	.99438	1001.0	37	.96174	1006.6	70	.89774	1009.6
5	.99298	1001.0	38	.96053	1006.8	71	.89527	1009.6
6	.99174	1001.1	39	.95912	1006.9	72	.89277	1009.7
7	.99056	1001.1	40	.95769	1007.0	73	.89027	1009.7
8	.98940	1001.2	41	.95621	1007.1	74	.88771	1009.8
9	.98822	1001.3	42	.95472	1007.2	75	.88512	1009.8
10	.98706	1001.4	43	.95316	1007.4	76	.88252	1009.9
11	.98606	1001.5	44	.95158	1007.5	77	.87988	1010.0
12	.98508	1001.6	45	.94995	1007.6	78	.87725	1010.0
13	.98409	1001.7	46	.94829	1007.8	79	.87455	1010.1
14	.98311	1001.8	47	.94659	1007.9	80	.87182	1010.2
15	.98220	1001.9	48	.94480	1008.0	81	.86907	1010.3
16	.98133	1002.1	49	.94297	1008.1	82	.86626	1010.3
17	.98045	1002.3	50	.94114	1008.2	83	.86346	1010.4
18	.97958	1002.5	51	.93929	1008.3	84	.86056	1010.5
19	.97877	1002.7	52	.93738	1008 4	85	.85761	1010.5
20	.97798	1003.0	53	.93543	1008 5	86	.85466	1010.5
21	.97719	1003.2	54	.93343	1008.6	87	.85157	1010.5
22	.97640	1003.4	55	.93139	1008.6	88	.84845	1010.6
23	.97553	1003.5	56	.92934	1008.7	89	.84531	1010.6
24	.97466	1003.7	57	.92724	1008.7	90	.84202	1010.7
25	.97379	1003.9	58	.92513	1008.8	91	.83863	1010.7
26	.97293	1004.1	59	.92300	1008.8	92	.83524	1010.8
27	.97208	1004.4	60	.92081	1008.9	93	.83183	1010.8
28	.97122	1004.6	61	.91862	1009 0	94	.82807	1010.9
29	.97030	1004.8	62	.91641	1009.1	95	.82418	1010 9
30	.96938	1005.0	63	.91417	1009.1	96	.82017	1011.0
31	.96844	1005.2	64	.91191	1009.2	97	.81602	1011.0
32	.96741	1005.4	65	.90964	1009.2	98	.81174	1011 1
33	.96637	1005.7	66	.90734	1009.3	99	.80732	1011.1
						100	.80278	1011.2

TABLE VIII—Continued.

Temperature 42°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99857	1000.9	34	.96498	1005.6	67	.90460	1008.9
2	.99716	1000.9	35	.96382	1005.8	68	.90219	1009.0
3	.99576	1001.0	36	.96264	1006.0	69	.89977	1009.0
4	.99436	1001.0	37	.96142	1006.2	70	.89730	1009.1
5	.99296	1001.0	38	.96020	1006.4	71	.89483	1009.1
6	.99172	1001.0	39	.95878	1006.5	72	.89232	1009.2
7	.99054	1001.1	40	.95735	1006.6	73	.8898?	1009.2
8	.98937	1001.2	41	.95587	1006.8	74	.88726	1009.3
9	.98819	1001.2	42	.95437	1006.9	75	.88468	1009.3
10	.98702	1001.3	43	.95280	1007.0	76	.88207	1009.4
11	.98601	1001.4	44	.95121	1007.1	77	.87943	1009.5
12	.98503	1001.5	45	.94958	1007.2	78	.87680	1009.5
13	.98403	1001.7	46	.94791	1007.4	79	.87409	1009.6
14	.98304	1001.8	47	.94621	1007.5	80	.87137	1009.6
15	.98212	1001.9	48	.94441	1007.6	81	.86861	1009.7
16	.98124	1002.0	49	.94259	1007.7	82	.86580	1009.7
17	.98036	1002.2	50	.94075	1007.8	83	.86299	1009.8
18	.97948	1002.4	51	.93890	1007.8	84	.86010	1009.9
19	.97866	1002.6	52	.93698	1008.0	85	.85715	1009.9
20	.97786	1002.8	53	.93503	1008.0	86	.85420	1009.9
21	.97705	1003.0	54	.93302	1008.1	87	.85111	1010.0
22	.97625	1003.3	55	.93098	1008.2	88	.84799	1010.0
23	.97537	1003.4	56	.92893	1008.2	89	.84484	1010.1
24	.97449	1003.6	57	.92683	1008.3	90	.84155	1010.2
25	.97361	1003.7	58	.92471	1008.4	91	.83816	1010.2
26	.97274	1003.9	59	.92258	1008.4	92	.83477	1010.2
27	.97188	1004.2	60	.92039	1008.5	93	.83137	1010.3
28	.97100	1004.4	61	.91819	1008.6	94	.82761	1010.3
29	.97008	1004.5	62	.91599	1008.6	95	.82372	1010.4
30	.96914	1004.8	63	.91374	1008.7	96	.81971	1010.4
31	.96819	1005.0	64	.91148	1008.7	97	.81556	1010.5
32	.96715	1005.2	65	.90921	1008.7	98	.81128	1010.5
33	.96609	1005.4	66	.90691	1008.8	99	.80686	1010.5
						100	.80232	1010.6

TABLE VIII—Continued.

Temperature 43°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99855	1000.8	34	.96470	1005.3	67	.90416	1008.5
2	.99715	1000.9	35	.96353	1005.5	68	.90175	1008.5
3	.99575	1000.9	36	.96234	1005.6	69	.89933	1008.5
4	.99434	1000.9	37	.96111	1005.9	70	.89686	1008.6
5	.99294	1000.9	38	.95987	1006.1	71	.89438	1008.6
6	.99169	1001.0	39	.95845	1006.2	72	.89188	1008.7
7	.99051	1001.0	40	.95702	1006.3	73	.88938	1008.7
8	.98933	1001.1	41	.95552	1006.4	74	.88682	1008.8
9	.98815	1001.2	42	.95401	1006.5	75	.88423	1008.8
10	.98698	1001.3	43	.95245	1006.7	76	.88163	1008.8
11	.98597	1001.4	44	.95085	1006.8	77	.87899	1008.9
12	.98497	1001.5	45	.94921	1006.9	78	.87635	1008.9
13	.98398	1001.6	46	.94754	1007.0	79	.87364	1009.0
14	.98298	1001.7	47	.94583	1007.1	80	.87091	1009.1
15	.98205	1001.8	48	.94403	1007.1	81	.86816	1009.2
16	.98116	1002.0	49	.94220	1007.2	82	.86534	1009.2
17	.98026	1002.1	50	.94036	1007.3	83	.86253	1009.3
18	.97937	1002.3	51	.93850	1007.4	84	.85963	1009.4
19	.97854	1002.4	52	.93658	1007.5	85	.85668	1009.4
20	.97773	1002.7	53	.93462	1007.6	86	.85374	1009.4
21	.97692	1002.9	54	.93262	1007.7	87	.85065	1009.4
22	.97610	1003.1	55	.93057	1007.7	88	.84752	1009.5
23	.97522	1003.2	56	.92851	1007.8	89	.84438	1009.5
24	.97433	1003.4	57	.92641	1007.8	90	.84109	1009.6
25	.97344	1003.6	58	.92430	1007.9	91	.83770	1009.6
26	.97255	1003.7	59	.92215	1007.9	92	.83431	1009.7
27	.97167	1003.9	60	.91996	1008.0	93	.83091	1009.7
28	.97079	1004.1	61	.91777	1008.1	94	.82715	1009.8
29	.96985	1004.3	62	.91556	1008.2	95	.82326	1009.8
30	.96890	1004.5	63	.91332	1008.2	96	.81925	1009.9
31	.96794	1004.7	64	.91106	1008.3	97	.81510	1009.9
32	.96688	1004.9	65	.90877	1008.3	98	.81082	1010.0
33	.96582	1005.1	66	.90647	1008.4	99	.80640	1010.0
						100	.80186	1010.1

TABLE VIII—Continued.

Temperature 44°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99854	1000.8	34	.96441	1005.0	67	.90372	1008.0
2	.99713	1000.9	35	.96323	1005.2	68	.90131	1008.0
3	.99573	1000.9	36	.96203	1005.3	69	.89890	1008.0
4	.99432	1000.9	37	.96079	1005.5	70	.89642	1008.1
5	.99292	1000.9	38	.95954	1005.7	71	.89394	1008.1
6	.99167	1000.9	39	.95811	1005.8	72	.89143	1008.2
7	.99049	1001.0	40	.95668	1005.9	73	.88893	1008.2
8	.98930	1001.1	41	.95518	1006.1	74	.88637	1008.3
9	.98812	1001.1	42	.95366	1006.2	75	.88379	1008.3
10	.98694	1001.2	43	.95209	1006.3	76	.88118	1008.3
11	.98592	1001.3	44	.95048	1006.4	77	.87854	1008.4
12	.98492	1001.4	45	.94884	1006.5	78	.87590	1008.4
13	.98392	1001.6	46	.94716	1006.6	79	.87318	1008.5
14	.98291	1001.7	47	.94545	1006.7	80	.87046	1008.5
15	.98197	1001.8	48	.94364	1006.7	81	.86770	1008.6
16	.98107	1001.9	49	.94182	1006.8	82	.86488	1008.6
17	.98017	1002.0	50	.93997	1006.9	83	.86206	1008.7
18	.97927	1002.2	51	.93811	1006.9	84	.85917	1008.8
19	.97843	1002.3	52	.93618	1007.1	85	.85622	1008.8
20	.97761	1002.5	53	.93422	1007.1	86	.85328	1008.8
21	.97678	1002.7	54	.93221	1007.2	87	.85019	1008.9
22	.97595	1003.0	55	.93016	1007.3	88	.84706	1008.9
23	.97506	1003.1	56	.92810	1007.3	89	.84391	1009.0
24	.97416	1003.3	57	.92600	1007.4	90	.84062	1009.1
25	.97326	1003.4	58	.92388	1007.5	91	.83723	1009.1
26	.97236	1003.5	59	.92173	1007.5	92	.83384	1009.1
27	.97147	1003.9	60	.91954	1007.6	93	.83044	1009.2
28	.97057	1003.0	61	.91734	1007.7	94	.82669	1009.2
29	.96963	1004.0	62	.91514	1007.7	95	.82280	1009.3
30	.96866	1004.3	63	.91289	1007.8	96	.81879	1009.3
31	.96769	1004.5	64	.91063	1007.8	97	.81464	1009.4
32	.96662	1004.7	65	.90834	1007.8	98	.81036	1009.4
33	.96554	1004.8	66	.90604	1007.9	99	.80594	1009.4
						100	.80140	1009.5

TABLE VIII—Continued.

Temperature 45°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99852	1000.8	34	.96413	1004.7	67	.90328	1007.5
2	.99712	1000.9	35	.96294	1004.9	68	.90087	1007.5
3	.99571	1000.9	36	.96173	1005.0	69	.89846	1007.5
4	.99430	1000.9	37	.96047	1005.2	70	89598	1007.6
5	.99290	1000.9	38	.95921	1005.4	71	.89350	1007.6
6	.99165	1000.9	39	.95778	1005.5	72	.89099	1007.7
7	.99046	1001.0	40	.95634	1005.6	73	.88849	1007.7
8	.98927	1001.1	41	.95483	1005.7	74	.88593	1007.8
9	.98808	1001.1	42	.95331	1005.8	75	.88334	1007.8
10	.98690	1001.2	43	.95173	1005.9	76	.88074	1007.8
11	.98587	1001.3	44	.95012	1006.0	77	.87809	1007.9
12	.98487	1001.4	45	.94847	1006.1	78	.87545	1007.9
13	.98386	1001.5	46	.94679	1006.2	79	.87273	1008.0
14	.98285	1001.6	47	.94507	1006.3	80	.87000	1008.0
15	.98190	1001.7	48	.94326	1006.3	81	.86724	1001.1
16	.98099	1001.8	49	.94143	1006.4	82	.86442	1008.1
17	.98008	1001.9	50	.93958	1006.5	83	.86160	1008.2
18	.97917	1002.1	51	.93771	1006.5	84	.85871	1008.3
19	.97832	1002.2	52	.93578	1006.7	85	.85576	1008.3
20	.97748	1002.4	53	.93381	1006.7	86	.85282	1008.3
21	.97664	1002 6	54	.93180	1006 8	87	.84973	1008.3
22	.97580	1002.8	55	.92975	1006 8	88	.84660	1008.4
23	.97490	1002.9	56	.92769	1006.9	89	.84345	1008 4
24	.97399	1003.1	57	.92558	1006.9	90	.84016	1008.5
25	.97308	1003.2	58	.92346	1007.0	91	.83677	1008.5
26	.97217	1003.3	59	.92131	1007.0	92	.83338	1008.6
27	.97127	1003.5	60	.91912	1007.1	93	.82997	1008.6
28	.97036	1003.7	61	.91692	1007.2	94	.82623	1008.6
29	.96940	1003.8	62	.91471	1007.2	95	.82233	1008.7
30	.96842	1004.0	63	.91246	1007.3	96	.81832	1008.7
31	.96744	1004.2	64	.91020	1007.3	97	.81417	1008.8
32	.96636	1004.4	65	.90791	1007.3	98	.80990	1008.8
33	.96527	1004.5	66	.90560	1007.4	99	.80548	1008.8
						100	.80094	1008.9

TABLE VIII—Continued.

Temperature 46°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99848	1000.8	34	.96384	1004.4	67	.90284	1007.0
2	.99708	1000.9	35	.96264	1004.6	68	.90043	1007.0
3	.99567	1000.9	36	.96142	1004.7	69	.89802	1007.0
4	.99426	1000.9	37	.96015	1004.9	70	.89554	1007.1
5	.99286	1000.9	38	.95887	1005.0	71	.89305	1007.1
6	.99161	1000.9	39	.95744	1005.1	72	89054	1007.2
7	.99041	1001.0	40	.95599	1005.2	73	.88804	1007.2
8	.98922	1001.0	41	.95448	1005.3	74	.88548	1007.3
9	.98803	1001.0	42	.95295	1005.4	75	.88289	1007.3
10	.98684	1001.1	43	.95137	1005.5	76	.88029	1007.3
11	.98581	1001.2	44	.94975	1005.6	77	.87764	1007.4
12	.98480	1001.3	45	.94810	1005.7	78	.87499	1007.4
13	.98378	1001.4	46	.94641	1005.8	79	.87227	1007.5
14	.98277	1001.5	47	.94468	1005.9	80	.86954	1007.5
15	.98181	1001.6	48	.94287	1005.9	81	.86678	1007.6
16	.98089	1001.7	49	.94104	1006.0	82	.86396	1007.6
17	.97997	1001.8	50	.93918	1006.1	83	.86114	1007.7
18	.97905	1002.0	51	.93731	1006.1	84	.85825	1007.7
19	.97819	1002.1	52	.93537	1006.3	85	.85530	1007.7
20	.97734	1002.3	53	.93340	1006.3	86	.85236	1007.8
21	.97649	1002.4	54	.93139	1006.4	87	.84927	1007.8
22	.97563	1002.6	55	.92934	1006.4	88	.84613	1007.8
23	.97472	1002.7	56	.92727	1006.4	89	.84298	1007.8
24	.97381	1002.9	57	.92516	1006.4	90	.83969	1007.9
25	.97289	1003.0	58	.92304	1006.5	91	.83630	1007.9
26	.97197	1003.1	59	.92089	1006 5	92	.83291	1008.0
27	.97105	1003.3	60	.91869	1006.6	93	.82951	1008 0
28	.97013	1003.5	61	.91649	1006.7	94	.82576	1008.0
29	.96916	1003.6	62	.91428	1006.7	95	.82187	1008.1
30	.96817	1003.7	63	.91203	1006.8	96	.81786	1008.1
31	.96718	1003.9	64	.90976	1006.8	97	.81371	1008.2
32	.96609	1004.1	65	.90747	1006.8	98	.80944	1008.2
33	.96499	1004.2	66	.90516	1006.9	99	.80502	1008.2
						100	.80048	1008.3

TABLE VIII—Continued.

Temperature 47°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99845	1000.8	34	.96355	1004.1	67	.90240	1006.5
2	.99704	1000.8	35	.96234	1004.3	68	.89999	1006.5
3	.99563	1000.8	36	.96111	1004.4	69	.89758	1006.5
4	.99422	1000.8	37	.95982	1004.5	70	.89509	1006.6
5	.99282	1000.8	38	.95854	1004.7	71	.89260	1006.6
6	.99156	1000.8	39	.95710	1004.8	72	.89009	1006.7
7	.99037	1000.9	40	.95565	1004.8	73	.88759	1006.7
8	.98917	1001.0	41	.95413	1004.9	74	.88503	1006.8
9	.98798	1001.0	42	.95269	1005.0	75	.88244	1006.8
10	.98678	1001.1	43	.95100	1005.1	76	.87983	1006.8
11	.98575	1001.1	44	.94938	1005.2	77	.87718	1006.9
12	.98473	1001.2	45	.94772	1005.3	78	.87454	1006.9
13	.98370	1001.3	46	.94603	1005.4	79	.87182	1007.0
14	.98268	1001.4	47	.94430	1005.5	80	.86908	1007.0
15	.98172	1001.5	48	.94248	1005.5	81	.86632	1007.0
16	.98079	1001.6	49	.94064	1005.6	82	.86350	1007.1
17	.97986	1001.7	50	.93878	1005.6	83	.86067	1007.1
18	.97894	1001.9	51	.93691	1005.7	84	.85778	1097.2
19	.97806	1002.0	52	.93496	1005.8	85	.85483	1007.2
20	.97720	1002.1	53	.93299	1005.8	86	.85189	1007.2
21	.97634	1002.3	54	.93098	1005.9	87	.84881	1007.2
22	.97547	1002.5	55	.92892	1005.9	88	.84567	1007.3
23	.97455	1002.5	56	.92685	1006.0	89	.84252	1007.3
24	.97362	1002.7	57	.92474	1006.0	90	.83922	1007.4
25	.97270	1002.8	58	.92262	1006.1	91	.83583	1007.4
26	.97176	1002.9	59	.92047	1006.1	92	.83244	1007.4
27	.97084	1003.1	60	.91827	1006.2	93	.82904	1007.4
28	.96991	1003.2	61	.91606	1006.2	94	.82529	1007.5
29	.96892	1003.3	62	.91385	1006.2	95	.82140	1007.5
30	.96792	1003.5	63	.91159	1006.3	96	.81739	1007.5
31	.96692	1003.7	64	.90933	1006.3	97	.81325	1007.6
32	.96582	1003.8	65	.90704	1006.3	98	.80897	1007.6
33	.96471	1003.9	66	.90472	1006.4	99	.80456	1007.6
						100	.80002	1007.7

TABLE VIII—Continued.

Temperature 48°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99841	1000.7	34	.96326	1003.8	67	.90195	1006.0
2	.99701	1000.8	35	.96203	1003.9	68	.89954	1006.0
3	.99560	1000.8	36	.96080	1004.0	69	.89713	1006.1
4	.99419	1000.8	37	.95950	1004.2	70	.89465	1006.1
5	.99278	1000.8	38	.95820	1004.3	71	.89216	1006.1
6	.99152	1000.8	39	.95676	1004.4	72	.88965	1006.2
7	.99032	1000.9	40	.95530	1004.5	73	.88714	1006.2
8	.98912	1000.9	41	.95377	1004.6	74	.88457	1006.2
9	.98792	1000.9	42	.95224	1004.7	75	.88198	1006.2
10	.98673	1001.0	43	.95064	1004.8	76	.87938	1006.3
11	.98568	1001.1	44	.94902	1004.8	77	.87673	1006.3
12	.98465	1001.2	45	.94735	1004.9	78	.87408	1006.3
13	.98363	1001.3	46	.94564	1004 9	79	.87136	1006.4
14	.98260	1001.3	47	.94391	1005.0	80	.86863	1006.4
15	.98162	1001.4	48	.94209	1005.1	81	.86585	1006.5
16	.98069	1001.5	49	.94025	1005 1	82	.86303	1006.5
17	.97976	1001.6	50	.93839	1005.2	83	.86021	1006 6
18	.97882	1001.7	51	.93650	1005.2	84	.85732	1006.6
19	.97793	1001.8	52	.93456	1005.4	85	.85437	1006.6
20	.97705	1002.0	53	.93258	1005.4	86	.85143	1006.7
21	.97618	1002.1	54	.93056	1005.5	87	.84834	1006.7
22	.97530	1002.3	55	.92851	1005.5	88	.84520	1006.7
23	.97437	1002.4	56	.92643	1005.5	89	.84205	1006.7
24	.97344	1002.5	57	.92433	1005.5	90	.83876	1006.8
25	.97250	1002.6	58	.92219	1005.6	91	.83537	1006.8
26	.97156	1002.7	59	.92004	1005.6	92	.83198	1006.9
27	.97062	1002.8	60	.91784	1005.7	93	.82857	1006.9
28	.96968	1003.0	61	.91564	1005.8	94	.82482	1006.9
29	.96869	1003.1	62	.91341	1005.8	95	.82093	1007.0
30	.96768	1003.2	63	.91116	1005.9	96	.81692	1007.0
31	.96666	1003.4	64	.90889	1005.9	97	.81278	1007.1
32	.96554	1003.6	65	.90660	1005.9	98	.80850	1007.1
33	.96443	1003.7	66	.90429	1006.0	99	.80410	1007.1
						100	.79956	1007.2

TABLE VIII—Continued.

Temperature 49°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99838	1000.7	34	.96297	1003.5	67	.90151	1005.5
2	.99697	1000.7	35	.96173	1003.6	68	.89910	1005.5
3	.99556	1000.7	36	.96049	1003.7	69	.89669	1005.6
4	.99415	1000.7	37	.95917	1003.8	70	.89420	1005.6
5	.99274	1000.7	38	.95787	1004.0	71	.89171	1005.6
6	.99147	1000.7	39	.95642	1004 1	72	.88920	1005.6
7	.99028	1000.8	40	.95496	1004.1	73	.88669	1005.7
8	.98907	1000.9	41	.95342	1004.2	74	.88412	1005.7
9	.98787	1000.9	42	.95188	1004.3	75	.88153	1005.7
10	.98667	1001.0	43	.95027	1004.4	76	.87892	1005.8
11	.98562	1001.0	44	.94865	1004.4	77	.87627	1005.8
12	.98458	1001.1	45	.94697	1004.5	78	.87363	1005.8
13	.98355	1001.2	46	.94526	1004.5	79	.87091	1005.9
14	.98251	1001.2	47	.94353	1004.6	80	.86817	1005.9
15	.98153	1001.3	48	.94170	1004.7	81	.86539	1005.9
16	.98059	1001.4	49	.93985	1004 7	82	.86257	1006.0
17	.97965	1001.5	50	.93799	1004.7	83	.85974	1006.0
18	.97871	1001.6	51	.93610	1004.8	84	.85685	1006.1
19	.97780	1001.7	52	.93415	1004.9	85	.85390	1006.1
20	.97691	1001.8	53	.93217	1004.9	86	.85096	1006.1
21	.97603	1002.0	54	.93015	1005.0	87	.84788	1006.1
22	.97514	1002.2	55	.92809	1005.0	88	.84474	1006.2
23	.97420	1002.2	56	.92601	1005.1	89	.84159	1006.2
24	.97325	1002.3	57	.92391	1005.1	90	.83829	1006.3
25	.97231	1002.4	58	.92177	1005.2	91	.83490	1006.3
26	.97135	1002.5	59	.91962	1005.2	92	.83151	1006.3
27	.97041	1002 6	60	.91742	1005.3	93	.82810	1006.3
28	.96946	1002.7	61	.91521	1005.3	94	.82435	1006.4
29	.96845	1002.8	62	.91298	1005.3	95	.82046	1006.4
30	.96743	1003.0	63	.91072	1005.4	96	.81645	1006.4
31	.96640	1003.2	64	.90846	1005.4	97	.81231	1006.5
32	.96527	1003.3	65	.90617	1005.4	98	.80803	1006.5
33	.96415	1003.4	66	.90385	1005.5	99	.80363	1006.5
						100	.79910	1006.6

TABLE VIII—Continued.

Temperature 50°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99834	1000.7	34	.96268	1003.2	67	.90107	1005.0
2	.99693	1000.7	35	.96143	1003.3	68	.89866	1005.0
3	.99552	1000.7	36	.96018	1003.4	69	.89625	1005.1
4	.99411	1000.7	37	.95885	1003.5	70	.89376	1005.1
5	.99270	1000.7	38	.95753	1003.6	71	.89126	1005.1
6	.99143	1000.7	39	.95608	1003.7	72	.88875	1005.1
7	.99023	1000.8	40	.95461	1003.7	73	.88624	1005.2
8	.98902	1000.8	41	.95307	1003.8	74	.88367	1005.2
9	.98782	1000.8	42	.95152	1003.9	75	.88108	1005.2
10	.98661	1000.9	43	.94991	1004.0	76	.87847	1005.3
11	.98556	1000.9	44	.94828	1004.0	77	.87582	1005.3
12	.98451	1001.0	45	.94660	1004.1	78	.87317	1005.3
13	.98347	1001.1	46	.94488	1004.1	79	.87045	1005.4
14	.98243	1001.1	47	.94314	1004.2	80	.86771	1005.4
15	.98144	1001,2	48	.94131	1004.3	81	.86493	1005.4
16	.98049	1001.3	49	.93946	1004.3	82	.86211	1005.5
17	.97954	1001.4	50	.93759	1004.3	83	.85928	1005.5
18	.97859	1001.5	51	.93570	1004.4	84	.85639	1005.5
19	.97767	1001.6	52	.93374	1004.5	85	.85344	1005.5
20	.97677	1001.7	53	.93176	1004.5	86	.85050	1005.6
21	.97588	1001.8	54	.92974	1004.6	87	.84742	1005.6
22	.97497	1002.0	55	.92768	1004.6	88	.84427	1005.6
23	.97402	1002.0	56	.92559	1004.6	89	.84112	1005.6
24	.97307	1002.1	57	.92349	1004.6	90	.83782	1005.7
25	.97212	1002.2	58	.92135	1004.7	91	.83443	1005.7
26	.97115	1002.3	59	.91920	1004.7	92	.83104	1005 7
27	.97019	1002.4	60	.91699	1004.8	93	.82763	1005.7
28	.96923	1002.5	61	.91478	1004.8	94	.82388	1005.8
29	.96821	1002.6	62	.91255	1004.8	95	.82000	1005.8
30	.96718	1002.7	63	.91029	1004.9	96	.81598	1005 8
31	.96614	1002.9	64	.90802	1004.9	97	.81184	1005 9
32	.96500	1003.0	65	.90573	1004.9	98	.80756	1005.9
33	.96387	1003.1	66	.90341	1005.0	99	.80316	1005.9
						100	.79863	1006.0

TABLE VIII—Continued.

Temperature 51°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99828	1000.6	34	.96238	1002.9	67	.90062	1004.5
2	.99687	1000.6	35	.96112	1003.0	68	.89821	1004.5
3	.99546	1000.6	36	.95986	1003.1	69	.89580	1004.6
4	.99405	1000.6	37	.95852	1003.2	70	.89331	1004.6
5	.99264	1000.6	38	.95719	1003.3	71	.89081	1004.6
6	.99137	1000.6	39	.95573	1003.3	72	.88830	1004.6
7	.99016	1000.7	40	.95426	1003.3	73	.88579	1004.7
8	.98895	1000.7	41	.95271	1003.4	74	.88322	1004.7
9	.98775	1000.7	42	.95116	1003.5	75	.88062	1004.7
10	.98653	1000.8	43	.94954	1003.6	76	.87801	1004.8
11	.98547	1000.8	44	.94790	1003.6	77	.87536	1004.8
12	.98142	1000.9	45	.94622	1003.7	78	.87271	1004.8
13	.98337	1001.0	46	.94449	1003.7	79	.86999	1004.9
14	.98233	1001.0	47	.94275	1003.8	80	.86725	1004.9
15	.98133	1001.1	48	.94091	1003.9	81	.86447	1004.9
16	.98037	1001.2	49	.93906	1003.9	82	.86164	1004.9
17	.97941	1001.3	50	.93719	1003.9	83	.85881	1005.0
18	.97846	1001.4	51	.93529	1004.0	84	.85592	1005.0
19	.97753	1001.4	52	.93333	1004.0	85	.85297	1005.0
20	.97661	1001.5	53	.93134	1004.1	86	.85003	1005.0
21	.97571	1001.6	54	.92932	1004.1	87	.84695	1005.0
22	.97479	1001.8	55	.92726	1004.1	88	.84380	1005.0
23	.97383	1001.8	56	.92517	1004.1	89	.84065	1005.0
24	.97287	1001.9	57	.92306	1004.1	90	.83735	1005.1
25	.97191	1002.0	58	.92092	1004.2	91	.83396	1005.1
26	.97094	1002.1	59	.91877	1004.2	92	.83057	1005.1
27	.96996	1002.2	60	.91656	1004.3	93	.82716	1005.1
28	.96899	1002.3	61	.91434	1004.3	94	.82342	1005.2
29	.96796	1002.3	62	.91211	1004.3	95	.81953	1005.2
30	.96692	1002.4	63	.90985	1004.4	96	.81552	1005.2
31	.96587	1002.6	64	.90758	1004.4	97	.81138	1005.3
32	.96472	1002.7	65	.90529	1004.4	98	.80710	1005 3
33	.96358	1002.8	66	.90296	1004.5	99	.80270	1005.3
						100	.79817	1005.4

TABLE VIII—Continued.

Temperature 52°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99822	1000 6	34	.96208	1002.6	67	.90017	1004.0
2	.99681	1000.6	35	.96081	1002.7	68	.89776	1004.0
3	.99540	1000.6	36	.95954	1002.7	69	.89535	1004.1
4	.99399	1000.6	37	.95819	1002.8	70	.89286	1004.1
5	.99258	1000.6	38	.95685	1002.9	71	.89036	1004.1
6	.99131	1000.6	39	.95538	1003.0	72	.88785	1004.1
7	.99010	1000.6	40	.95391	1003.0	73	.88533	1004.2
8	.98888	1000.7	41	.95235	1003.0	74	.88276	1004.2
9	.98767	1000.7	42	.95079	1003.1	75	.88017	1004.2
10	.98645	1000 7	43	.94917	1003.2	76	.87755	1004.2
11	.98539	1000.7	44	.94752	1003.2	77	.87490	1004.3
12	.98433	1000.8	45	.94583	1003 3	78	.87225	1004.3
13	.98328	1000.9	46	.94410	1003.3	79	.86953	1004.3
14	.98223	1000.9	47	.94235	1003.4	80	.86678	1004.3
15	.98122	1001.0	48	.94051	1003.4	81	.86400	1004.3
16	.98026	1001.1	49	.93866	1003.5	82	.86118	1004.3
17	.97929	1001.1	50	.93678	1003.5	83	.85834	1004.4
18	.97832	1001.2	51	.93489	1003.5	84	.85545	1004.4
19	.97738	1001.3	52	.93292	1003.6	85	.85250	1004.4
20	.97646	1001.4	53	.93093	1003.6	86	.84956	1004.5
21	.97554	1001.5	54	.92890	1003.7	87	.84648	1004.5
22	.97461	1001.6	55	.92684	1003.7	88	.84333	1004.5
23	.97364	1001.6	56	.92475	1003.7	89	.84018	1004.5
24	.97268	1001.7	57	.92264	1093.7	90	.83688	1004.5
25	.97171	1001.8	58	.92049	1003.8	91	.83349	1004.6
26	.97072	1001 9	59	.91834	1003.8	92	.83010	1004.6
27	.96974	1001.9	60	.91613	1003.8	93	.82669	1004.6
28	.96876	1002.0	61	.91391	1003.8	94	.82295	1094.6
29	.96771	1002.1	62	.91167	1003.8	95	.81907	1094.6
30	.96666	1002.2	63	.90941	1093.9	96	.81506	1004.6
31	.96560	1002.3	64	.90714	1003.9	97	.81092	1004.7
32	.96444	1002.4	65	.90485	1003.9	98	.80664	1004.7
33	.96329	1002.5	66	.90252	1004.0	99	.80223	1004.7
						100	.79771	1004.8

TABLE VIII—Continued.

Temperature 53°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99817	1000.5	34	.96177	1002.2	67	.89973	1003.5
2	.99676	1000.5	35	.96050	1002 3	68	.89732	1003 5
3	.99535	1000.5	36	.95922	1002.4	69	.89491	1003.5
4	.99393	1000.5	37	.95786	1002.5	70	.89241	1003.6
5	.99252	1000.5	38	.95650	1002.6	71	.88991	1003.6
6	.99124	1000.5	39	.95504	1002.6	72	.88739	1003.6
7	.99003	1000.6	40	.95355	1002.6	73	.88488	1003.6
8	.98881	1000.6	41	.95200	1002.7	74	.88231	1003.6
9	.98760	1000.6	42	.95043	1002.8	75	.87971	1003.6
10	.98638	1000.7	43	.94879	1002.8	76	.87710	1003.7
11	.98530	1000.7	44	.94715	1002.8	77	.87445	1003.7
12	.98425	1000.7	45	.94545	1002.9	78	.87179	1003.7
13	.98318	1000.8	46	.94372	1002.9	79	.86906	1003.8
14	.98212	1000.8	47	.94196	1002.9	80	.86632	1003.8
15	.98112	1000.8	48	.94012	1003.0	81	.86354	1003.8
16	.98014	1000.9	49	.93826	1003.0	82	.86071	1003.8
17	.97916	1001.0	50	.93638	1003.0	83	.85788	1003.9
18	.97819	1001.1	51	.93448	1003.1	84	.85499	1003.9
19	.97724	1001.1	52	.93250	1003.1	85	.85204	1003.9
20	.97630	1001.2	53	.93051	1003.2	86	.84910	1003 9
21	.97537	1001.3	54	.92848	1003.2	87	.84601	1003.9
22	.97443	1001.4	55	.92642	1003.2	88	.84286	1003.9
23	.97346	1001.5	56	.92432	1003.2	89	.83971	1003.9
24	.97248	1001.5	57	.92221	1003.2	90	.83641	1004.0
25	.97150	1001.5	58	.92007	1003.3	91	.83302	1004.0
26	.97051	1001.6	59	.91790	1003 3	92	.82963	1004.0
27	.96951	1001.7	60	.91569	1003.4	93	.82622	1004.0
28	.96852	1001.8	61	.91347	1003.4	94	.82248	1004.1
29	.96747	1001 8	62	.91124	1003.4	95	.81860	1004.1
30	.96640	1001.9	63	.90898	1003.4	96	.81459	1004.1
31	.96532	1002.0	64	.90671	1003.5	97	.81045	1004.1
32	.96416	1002.1	65	.90441	1003,5	98	.80618	1004.2
33	.96299	1002.1	66	.90207	1003.5	99	.80176	1004.2
						100	.79724	1004.2

TABLE VIII—Continued.

Temperature 54°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99811	1000.5	34	.96147	1001.9	67	.89928	1003.0
2	.99670	1000.5	35	.96019	1002.0	68	.89687	1003.0
3	.99529	1000.5	36	.95890	1002.0	69	.89446	1003.0
4	.99387	1000.5	37	.95753	1002.1	70	.89196	1003.1
5	.99246	1000.5	38	.95616	1002.2	71	.88946	1003.1
6	.99118	1000.5	39	.95469	1002.3	72	.88694	1003.1
7	.98997	1000.5	40	.95320	1002.3	73	.88442	1003.1
8	.98874	1000.6	41	.95164	1002.3	74	.88185	1003.1
9	.98752	1000.6	42	.95006	1002.4	75	.87926	1003.1
10	.98630	1000.6	43	.94842	1002.4	76	.87664	1003.1
11	.98522	1000.6	44	.94677	1002.4	77	.87399	1003.2
12	.98416	1000.6	45	.94506	1002.5	78	.87133	1003.2
13	.98309	1000.7	46	.94333	1002.5	79	.86860	1003.2
14	.98202	1000.7	47	.94156	1002.5	80	.86585	1003.2
15	.98101	1000.7	48	.93972	1002.5	81	.86307	1003.2
16	.98003	1000.8	49	.93786	1002.6	82	.86025	1003.3
17	.97904	1000.8	50	.93597	1002.6	83	.85741	1003.3
18	.97805	1000.9	51	.93408	1002.6	84	.85452	1003.3
19	.97709	1001.0	52	.93209	1002.7	85	.85157	1003.3
20	.97615	1001.1	53	.93010	1002.7	86	.84863	1003.4
21	.97520	1001.2	54	.92806	1002.8	87	.84554	1003.4
22	.97425	1001.2	55	.92600	1002.8	88	.84239	1003.4
23	.97327	1001.3	56	.92390	1002.8	89	.83924	1003.4
24	.97229	1001.3	57	.92179	1002.8	90	.83594	1003.4
25	.97130	1001.3	58	.91964	1002.9	91	.83255	1903.5
26	.97029	1001.4	59	.91747	1002.9	92	.82916	1003.5
27	.96929	1001.4	60	.91526	1002.9	93	.82575	1003.5
28	.96829	1001.5	61	.91304	1002.9	94	.82201	1003.5
29	.96722	1001.6	62	.91080	1002.9	95	.81813	1003.5
30	.96614	1001.7	63	.90854	1002.9	96	.81412	1003.5
31	.96505	1001.7	64	.90627	1003.0	97	.81093	1003.5
32	.96388	1001.8	65	.90397	1003.0	98	.80571	1003.6
33	.96270	1001.8	66	.90163	1003.0	99	.80130	1003.6
						100	.79678	1003.6

TABLE VIII—Continued.

Temperature 55°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99805	1000.4	34	.96117	1001.6	67	.89883	1002.5
2	.99664	1000.4	35	.95988	1001.7	68	.89642	1002.5
3	.99523	1000.4	36	.95858	1001.7	69	.89401	1002.5
4	.99381	1000.4	37	.95720	1001.8	70	.89151	1002.6
5	.99240	1000.4	38	.95582	1001.9	71	.88901	1002.6
6	.99112	1000.4	39	.95434	1001.9	72	.88649	1002.6
7	.98990	1000.4	40	.95285	1001.9	73	.88397	1002.6
8	.98867	1000.5	41	.95128	1001.9	74	.88140	1002.6
9	.98745	1000.5	42	.94970	1002.0	75	.87880	1002.6
10	.98622	1000.5	43	.94805	1002.0	76	.87618	1002.6
11	.98513	1000.5	44	.94639	1002.0	77	.87353	1002.7
12	.98407	1000.5	45	.94468	1002.1	78	.87087	1002.7
13	.98299	1000.6	46	.94294	1002.1	79	.86814	1002.7
14	.98192	1000.6	47	.94117	1002.1	80	.86539	1002.7
15	.98090	1000.6	48	.93932	1002.1	81	.86261	1002.7
16	.97991	1000.7	49	.93746	1002.2	82	.85978	1002.7
17	.97891	1000.7	50	.93557	1002.2	83	.85694	1002.8
18	.97792	1000.8	51	.93367	1002.2	84	.85405	1002.8
19	.97695	1000.8	52	.93168	1002.2	85	.85110	1002.8
20	.97599	1000.9	53	.92968	1002.3	86	.84816	1002.8
21	.97503	1001.0	54	.92764	1002.3	87	.84507	1002.8
22	.97407	1001.0	55	.92558	1002.3	88	.84192	1002.8
23	.97308	1001.1	56	.92348	1002.3	89	.83877	1002.8
24	.97209	1001.1	57	.92136	1002.3	90	.83547	1002.8
25	.97109	1001.1	58	.91921	1002.4	91	.83208	1002.9
26	.97008	1001.2	59	.91704	1002.4	92	.82869	1002.9
27	.96906	1001.2	60	.91483	1002.4	93	.82528	1002.9
28	.96805	1001.3	61	.91260	1002.4	94	.82154	1002.9
29	.96697	1001.3	62	.91036	1002.4	95	.81766	1002.9
30	.96588	1001.4	63	.90810	1002.4	96	.81365	1002.9
31	.96478	1001.4	64	.90583	1002.5	97	.80951	1002.9
32	.96360	1001.5	65	.90353	1002.5	98	.80523	1003.0
33	.96241	1001.5	66	.90118	1002.5	99	.80082	1003.0
						00	.79630	1003.0

TABLE VIII—Continued.

Temperature 56°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99798	1000.3	34	.96086	1001.3	67	.89838	1002.0
2	.99656	1000.3	35	.95956	1001.4	68	.89597	1002 0
3	.99515	1000.3	36	.95825	1001.4	69	.89356	1002.0
4	.99373	1000 3	37	.95685	1001.4	70	.89105	1002.1
5	.99232	1000.3	38	.95547	1001.5	71	.88855	1002.1
6	.99104	1000.3	39	.95398	1001 5	72	.88603	1002.1
7	.98981	1000.3	40	.95249	1001.5	73	.88351	1002 1
8	.98858	1000.4	41	.95092	1001.5	74	.88094	1002.1
9	.98736	1000.4	42	.94933	1001.6	75	.87834	1002.1
10	.98612	1000.4	43	.94767	1001.6	76	.87572	1002.1
11	.98503	1000.4	44	.94601	1001.6	77	.87307	1002.2
12	98396	1000.4	45	.94429	1001.7	78	.87041	1002.2
13	.98288	1000.5	46	.94255	1001.7	79	.86767	1002.2
14	.98180	1000 5	47	.94077	1001.7	80	.86492	1002 2
15	.98077	1000.5	48	.93892	1001 7	81	.86214	1002 2
16	.97977	1000 6	49	.93705	1001.8	82	.85931	1002.2
17	.97877	1000.6	50	.93516	1001.8	83	.85647	1002.2
18	.97777	1000 6	51	.93326	1001.8	84	.85358	1002.2
19	.97679	1000.6	52	.93126	1001.8	85	.85063	1002.2
20	.97582	1000.7	53	.92926	1001.8	86	.84769	1002.2
21	.97484	1000.8	54	.92722	1001.8	87	.84460	1002.2
22	.97387	1000 8	55	.92515	1001.8	88	.84145	1002.2
23	.97287	1000.9	56	.92305	1001.8	89	.83830	1002.2
24	.97188	1000.9	57	.92093	1001.8	90	.83500	1002.2
25	.97087	1000.9	58	.91878	1001.9	91	.83161	1002.3
26	.96985	1001.0	59	.91661	1001.9	92	.82822	1002.3
27	.96882	1001.0	60	.91439	1001.9	93	.82481	1002.3
28	.96780	1001.0	61	.91216	1001.9	94	.82107	1002.3
29	.96671	1001.0	62	.90992	1001.9	95	.81719	1002.3
30	.96561	1001.1	63	.90766	1001.9	96	.81318	1002.3
31	.96450	1001.1	64	.90538	1002.0	97	.80904	1002.3
32	.96331	1001.2	65	.90308	1002.0	98	.80476	1002.4
33	.96211	1001.2	66	.90073	1002.0	99	.80035	1002.4
						100	.79583	1002.4

TABLE VIII—Continued.

Temperature 57°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99790	1000.2	34	.96055	1001.0	67	.89792	1001.5
2	.99649	1000.2	35	.95924	1001.0	68	.89551	1001.5
3	.99507	1000.2	36	.95792	1001.0	69	.89310	1001.5
4	.99365	1000.2	37	.95652	1001.1	70	.89060	1001.6
5	.99224	1000.2	38	.95512	1001.1	71	.88810	1001.6
6	.99096	1000.2	39	.95363	1001.1	72	.88557	1001.6
7	.98973	1000.2	40	.95213	1001.1	73	.88305	1001.6
8	.98849	1000.3	41	.95055	1001.1	74	.88048	1001.6
9	.98726	1000.3	42	.94896	1001.2	75	.87788	1001.6
10	.98603	1000.3	43	.94729	1001.2	76	.87526	1001.6
11	.98493	1000.3	44	.94562	1001.2	77	.87261	1001.6
12	.98385	1000.3	45	.94390	1001.3	78	.86994	1001.6
13	.98276	1000.4	46	.94216	1001.3	79	.86721	1001.6
14	.98168	1000.4	47	.94037	1001.3	80	.86446	1001.6
15	.98064	1000.4	48	.93852	1001.3	81	.86167	1001.6
16	.97964	1000.4	49	.93665	1001.3	82	.85884	1001.6
17	.97862	1000.4	50	.93475	1001.3	83	.85600	1001.7
18	.97762	1000.5	51	.93285	1001.3	84	.85310	1001.7
19	.97663	1000.5	52	.93084	1001.3	85	.85016	1001.7
20	.97564	1000.5	53	.92883	1001.4	86	.84722	1001.7
21	.97466	1000.6	54	.92679	1001.4	87	.84413	1001.7
22	.97367	1000.6	55	.92472	1001.4	88	.84097	1001.7
23	.97267	1000.7	56	.92262	1001.4	89	.83782	1001.7
24	.97167	1000.7	57	.92050	1001.4	90	.83452	1001.7
25	.97065	1000.7	58	.91835	1001.4	91	.83112	1001.7
26	.96962	1000.7	59	.91617	1001.4	92	.82774	1001.7
27	.96858	1000.7	60	.91395	1001.4	93	.82434	1001.7
28	.96755	1000.8	61	.91172	1001.4	94	.82060	1001.7
29	.96645	1000.8	62	.90948	1001.4	95	.81672	1001.7
30	.96534	1000.8	63	.90722	1001.4	96	.81270	1001.7
31	.96422	1000.8	64	.90494	1001.5	97	.80857	1001.7
32	.96302	1000.9	65	.90264	1001.5	98	.80429	1001.8
33	.96181	1000.9	66	.90028	1001.5	99	.79988	1001.8
						100	.79534	1001.8

TABLE VIII—Continued.

Temperature 58°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99783	1000.2	34	.96025	1000.6	67	.89747	1001.0
2	.99641	1000.2	35	.95893	1000.7	68	.89506	1001.0
3	.99500	1000.2	36	.95759	1000.7	69	.89265	1001.0
4	.99358	1000.2	37	.95617	1000.7	70	.89014	1001.0
5	.99216	1000.2	38	.95476	1000.8	71	.88764	1001.0
6	.99087	1000.2	39	.95327	1000.8	72	.88512	1001.0
7	.98964	1000.2	40	.95178	1000.8	73	.88260	1001.0
8	.98840	1000.2	41	.95019	1000.8	74	.88003	1001.0
9	.98717	1000.2	42	.94858	1000.8	75	.87743	1001.0
10	.98593	1000.2	43	.94692	1000.8	76	.87480	1001.0
11	.98483	1000.2	44	.94524	1000.8	77	.87214	1001.1
12	.98375	1000.2	45	.94352	1000.8	78	.86948	1001.1
13	.98265	1000.2	46	.94176	1000.8	79	.86674	1001.1
14	.98156	1000.2	47	.93998	1000.8	80	.86399	1001.1
15	.98052	1000.2	48	.93811	1000.8	81	.86121	1001.1
16	.97950	1000.3	49	.93624	1000.9	82	.85837	1001.1
17	.97848	1000.3	50	.93435	1000.9	83	.85552	1001.1
18	.97746	1000.3	51	.93243	1000.9	84	.85263	1001.1
19	.97646	1000.3	52	.93043	1000.9	85	.84968	1001.1
20	.97547	1000.4	53	.92841	1000.9	86	.84674	1001.1
21	.97447	1000.4	54	.92637	1000.9	87	.84365	1001.1
22	.97348	1000.4	55	.92430	1000.9	88	.84050	1001.1
23	.97246	1000.4	56	.92220	1000.9	89	.83735	1001.1
24	.97145	1000.4	57	.92007	1000.9	90	.83405	1001.1
25	.97044	1000.4	58	.91791	1001.0	91	.83066	1001.2
26	.96940	1000.5	59	.91574	1001.0	92	.82727	1001.2
27	.96835	1000.5	60	.91352	1001.0	93	.82387	1001.2
28	.96730	1000.5	61	.91128	1001.0	94	.82012	1001.2
29	.96620	1000.5	62	.90903	1001.0	95	.81624	1001.2
30	.96508	1000.6	63	.90677	1001.0	96	.81222	1001.2
31	.96395	1000.6	64	.90449	1001.0	97	.80809	1001.2
32	.96273	1000.6	65	.90219	1001.0	98	.80381	1001.2
33	.96152	1000.6	66	.89984	1001.0	99	.79941	1001.2
						100	.79486	1001.2

TABLE VIII—Continued.

Temperature 59°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99775	1000.1	34	.95994	1000.3	67	.89701	1000.5
2	.99634	1000.1	35	.95861	1000.3	68	.89460	1000.5
3	.99492	1000.1	36	.95726	1000.3	69	.89219	1000.5
4	.99350	1000.1	37	.95583	1000.4	70	.88969	1000.5
5	.99208	1000.1	38	.95441	1000.4	71	.88719	1000.5
6	.99079	1000.1	39	.95292	1000.4	72	.88466	1000.5
7	.98956	1000.1	40	.95142	1000.4	73	.88214	1000.5
8	.98831	1000.1	41	.94982	1000.4	74	.87957	1000.5
9	.88707	1000.1	42	.94821	1000.4	75	.87697	1000.5
10	.98584	1000.1	43	.94654	1000.4	76	.87434	1000.5
11	.98473	1000.1	44	.94485	1000.4	77	.87168	1000.5
12	.98364	1000.1	45	.94313	1000.4	78	.86901	1000.5
13	.98253	1000.1	46	.94137	1000.4	79	.86628	1000.5
14	.98144	1000.1	47	.93958	1000.4	80	.86353	1000.5
15	.98039	1000.1	48	.93771	1000.4	81	.86074	1000.5
16	.97937	1000.1	49	.93584	1000.4	82	.85790	1000.5
17	.97833	1000.1	50	.93394	1000.4	83	.85505	1000.6
18	.97731	1000.1	51	.93202	1000.4	84	.85215	1000.6
19	.97630	1000.1	52	.93001	1000.4	85	.84921	1000.6
20	.97529	1000.2	53	.92798	1000.5	86	.84627	1000.6
21	.97429	1000.2	54	.92594	1000.5	87	.84318	1000.6
22	.97328	1000.2	55	.92387	1000.5	88	.84002	1000.6
23	.97226	1000.2	56	.92177	1000.5	89	.83687	1000.6
24	.97124	1000.2	57	.91964	1000.5	90	.83357	1000.6
25	.97022	1000.2	58	.91748	1000.5	91	.83018	1000.6
26	.96917	1000.2	59	.91530	1000.5	92	.82679	1000.6
27	.96811	1000.2	60	.91308	1000.5	93	.82339	1000.6
28	.96705	1000.3	61	.91084	1000.5	94	.81964	1000.6
29	.96594	1000 3	62	.90859	1000.5	95	.81576	1000.6
30	.96481	1000.3	63	.90633	1000.5	96	.81174	1000.6
31	.96367	1000.3	64	.90405	1000.5	97	.80761	1000.6
32	.96244	1000.3	65	.90175	1000.5	98	.80332	1000.6
33	.96122	1000.3	66	.89939	1000.5	99	.79894	1000.6
						100	.79438	1000.6

TABLE VIII—Continued.

Temperature 60°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99768	1000.0	34	.95963	1000.0	67	.89656	1000 0
2	.99626	1000.0	35	.95829	1000.0	68	.89415	1000 0
3	.99484	1000.0	36	.95693	1000 0	69	.89174	1000.0
4	.99342	1000 0	37	.95549	1000.0	70	.88923	1000.0
5	.99200	1000 0	38	.95406	1000.0	71	.88673	1000.0
6	.99071	1000.0	39	.95256	1000.0	72	.88420	1000.0
7	.98947	1000.0	40	.95106	1000.0	73	.88168	1000.0
8	.98822	1000.0	41	.94946	1000.0	74	.87911	1000.0
9	.98698	1000.0	42	.94784	1000.0	75	.87651	1000.0
10	.98574	1000.0	43	.94616	1000.0	76	.87388	1000.0
11	.98463	1000.0	44	.94447	1000 0	77	.87122	1000.0
12	.98353	1000.0	45	.94274	1000.0	78	.86855	1000.0
13	.98242	1000.0	46	.94098	1000.0	79	.86581	1000 0
14	.98132	1000.0	47	.93918	1000 0	80	.86306	1000.0
15	.98026	1000.0	48	.93731	1000.0	81	.86027	1000.0
16	.97923	1000.0	49	.93543	1000.0	82	.85743	1000.0
17	.97819	1000.0	50	.93353	1000.0	83	.85458	1000.0
18	.97716	1000.0	51	.93161	1000.0	84	.85168	1000 0
19	.97614	1000.0	52	.92959	1000.0	85	.84874	1000.0
20	.97512	1000.0	53	.92756	1000.0	86	.84580	1000.0
21	.97410	1000.0	54	.92552	1000 0	87	.84271	1100.0
22	.97308	1000.0	55	.92344	1000.0	88	.83955	1000.0
23	.97205	1000.0	56	.92134	1000.0	89	.83640	1000.0
24	.97103	1000.0	57	.91921	1000.0	90	.83310	1000.0
25	.97000	1000.0	58	.91705	1000.0	91	.82971	1000.0
26	.96894	1000.0	59	.91487	1000.0	92	.82632	1000.0
27	.96787	1000.0	60	.91264	1000.0	93	.82291	1000.0
28	.96680	1000.0	61	.91040	1000.0	94	.81916	1000.0
29	.96568	1000.0	62	.90815	1000.0	95	.81528	1000.0
30	.96454	1000.0	63	.90589	1000.0	96	.81126	1000.0
31	.96339	1000.0	64	.90360	1000.0	97	.80713	1000.0
32	.96215	1000.0	65	.90130	1000 0	98	.80284	1000.0
33	.96092	1000.0	66	.89894	1000.0	99	.79846	1000.0
						100	.79390	1000.0

TABLE VIII—Continued.

Temperature 61°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99759	999.9	34	.95931	999.7	67	.89610	999 5
2	.99616	999.9	35	.95796	999.7	68	.89369	999.5
3	.99474	999.9	36	.95659	999.6	69	.89128	999.5
4	.99332	999.9	37	.95514	999.6	70	.88877	999.5
5	.99190	999.9	38	.95370	999.6	71	.88627	999.5
6	.99061	999.9	39	.95220	999.6	72	.88374	999.5
7	.98936	999.9	40	.95069	999.6	73	.88122	999.5
8	.98811	999.9	41	.94909	999.6	74	.87865	999.5
9	.98687	999.9	42	.94746	999.6	75	.87604	999.5
10	.98562	999.9	43	.94578	999.6	76	.87341	999.5
11	.98451	999.9	44	.94408	999.6	77	.87075	999.5
12	.98340	999 9	45	.94235	999.6	78	.86808	999.5
13	.98229	999.9	46	.94058	939.6	79	.86534	999.5
14	.98118	999.9	47	.93878	999.6	80	.86259	999.5
15	.98011	999.8	48	.93690	999.6	81	.85980	999.5
16	.97908	999.8	49	.93502	999.6	82	.85696	999 5
17	.97803	999.8	50	.93311	999 6	83	.85411	999 4
18	.97699	999.8	51	.93119	999.6	84	.85121	999.4
19	.97596	999.8	52	.92917	999.5	85	.84826	999.4
20	.97493	999.8	53	.92713	999.5	86	.84532	999.4
21	.97390	999.8	54	.92509	999.5	87	.84223	999.4
22	.97287	999.8	55	.92301	999.5	88	.83907	999.4
23	.97183	999.8	56	.92091	999.5	89	.83592	999.4
24	.97080	999.8	57	.91877	999.5	90	.83262	999.4
25	.96977	999.8	58	.91661	999 5	91	.82923	999.4
26	.96870	999.8	59	.91443	999.5	92	.82584	999.4
27	.96762	999.7	60	.91220	999.5	93	.82244	999.4
28	.96654	999.7	61	.90996	999.5	94	.81869	999.4
29	.96541	999.7	62	.90770	999.5	95	.81481	999.4
30	.96426	999.7	63	.90544	999.5	96	.81079	999.4
31	.96310	999.7	64	.90315	999.5	97	.80666	999.4
32	.96185	999.7	65	.90085	999.5	98	.80237	999.4
33	.96061	999.7	66	.89849	999.5	99	.79799	999.4
						100	.79344	999.4

Ex —7

TABLE VIII—Continued.

Temperature 62°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99749	999.8	34	.95899	999.4	67	.89564	999.0
2	.99607	999.8	35	.95764	999.3	68	.89323	999.0
3	.99464	999.8	36	.95626	999.3	69	.89082	999.0
4	.99322	999.8	37	.95480	999.3	70	.88831	999.0
5	.99180	999.8	38	.95334	999.2	71	.88581	999.0
6	.99051	999.8	39	.95184	999.2	72	.88328	999.0
7	.98925	999.8	40	.95033	999.2	73	.88075	998.9
8	.98800	999.8	41	.94872	999.2	74	.87818	998.9
9	.98676	999.8	42	.94708	999.2	75	.87558	998.9
10	.98551	999.8	43	.94539	999.2	76	.87295	998.9
11	.98439	999.8	44	.94369	999.2	77	.87028	998.9
12	.98328	999.7	45	.94195	999.2	78	.86762	998.9
13	.98216	999.7	46	.94018	999.1	79	.86487	998.9
14	.98104	999.7	47	.93837	999.1	80	.86212	998.9
15	.97997	999.7	48	.93649	999.1	81	.85933	998.9
16	.97892	999.7	49	.93461	999.1	82	.85649	998.9
17	.97787	999.7	50	.93270	999.1	83	.85363	998.9
18	.97682	999.6	51	.93077	999.1	84	.85073	998.9
19	.97578	999.6	52	.92875	999.1	85	.84779	998.9
20	.97474	999.6	53	.92671	999.1	86	.84485	998.9
21	.97370	999.6	54	.92466	999.1	87	.84175	998.9
22	.97265	999.6	55	.92258	999.1	88	.83860	998.9
23	.97161	999.5	56	.92047	999.1	89	.83544	998.9
24	.97058	999.5	57	.91834	999.1	90	.83214	998.9
25	.96954	999.5	58	.91617	999.0	91	.82875	998.8
26	.96846	999.5	59	.91399	999.0	92	.82536	998.8
27	.96737	999.5	60	.91176	999.0	93	.82196	998.8
28	.96628	999.5	61	.90951	999.0	94	.81822	998.8
29	.96514	999.4	62	.90725	999.0	95	.81434	998.8
30	.96398	999.4	63	.90499	999.0	96	.81032	998.8
31	.96281	999.4	64	.90270	999.0	97	.80619	998.8
32	.96155	999.4	65	.90040	999.0	98	.80190	998.8
33	.96030	999.4	66	.89803	999.0	99	.79752	998.8
						100	.79297	998.8

TABLE VIII—Continued.

Temperature 63°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99740	999.7	34	.95868	999.0	67	.89519	998.5
2	.99597	999.7	35	.95731	999.0	68	.89277	998.5
3	.99455	999.7	36	.95592	998.9	69	.89036	998.5
4	.99313	999.7	37	.95445	998.9	70	.88785	998.5
5	.99170	999.7	38	.95299	998.9	71	.88534	998.4
6	.99040	999.7	39	.95147	998.9	72	.88281	998.4
7	.98915	999.7	40	.94996	998.8	73	.88029	998.4
8	.98790	999.6	41	.94834	998.8	74	.87772	998.4
9	.98664	999.6	42	.94670	998.8	75	.87511	998.4
10	.98539	999.6	43	.94501	998.8	76	.87248	998.4
11	.98426	999.6	44	.94330	998.8	77	.86982	998.4
12	.98315	999.6	45	.94156	998.7	78	.86715	998.4
13	.98202	999.6	46	.93978	998.7	79	.86440	998.4
14	.98091	999.6	47	.93797	998.7	80	.86164	998.4
15	.97982	999.5	48	.93609	998.7	81	.85885	998.4
16	.97877	999.5	49	.93419	998.7	82	.85601	998.4
17	.97771	999.5	50	.93228	998.7	83	.85316	998.3
18	.97666	999.5	51	.93036	998.7	84	.85026	998.3
19	.97560	999.5	52	.92832	998.6	85	.84731	998.3
20	.97454	999.4	53	.92628	998.6	86	.84437	998.3
21	.97349	999.4	54	.92423	998.6	87	.84128	998.3
22	.97244	999.3	55	.92214	998.6	88	.83812	998.3
23	.97139	999.3	56	.92004	998.6	89	.83497	998.3
24	.97035	999.3	57	.91790	998.6	90	.83167	998.3
25	.96930	999.3	58	.91574	998.6	91	.82828	998.3
26	.96821	999.3	59	.91355	998.6	92	.82489	998.3
27	.96712	999.2	60	.91132	998.6	93	.82148	998.3
28	.96602	999.2	61	.90907	998.5	94	.81774	998.3
29	.96487	999.2	62	.90681	998.5	95	.81386	998.2
30	.96370	999.1	63	.90455	998.5	96	.80984	998.2
31	.96252	999.1	64	.90226	998.5	97	.80571	998.2
32	.96126	999.1	65	.89995	998.5	98	.80143	998.2
33	.96000	999.0	66	.89758	998.5	99	.79704	998.2
						100	.79250	998.2

TABLE VIII—Continued.

Temperature 64°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99730	999.6	34	.95836	998.7	67	.89473	998 0
2	.99588	999 6	35	.95699	998.6	68	.89231	997.9
3	.99445	999.6	36	.95559	998.6	69	.88990	997.9
4	.99303	999.6	37	.95411	998.6	70	.88739	997.9
5	.99160	999.6	38	.95263	998.5	71	.88488	997.9
6	.99030	999.6	39	.95111	998.5	72	.88235	997.9
7	.98904	999.6	40	.94960	998.5	73	.87982	997.9
8	.98779	999.5	41	.94797	998.4	74	.87725	997.9
9	.98653	999.5	42	.94632	998.4	75	.87465	997.9
10	.98528	999 5	43	.94462	998.4	76	.87202	997.9
11	.98414	999.5	44	.94291	998.4	77	.87935	997.8
12	.98303	999.5	45	.94116	998.3	78	.86669	997.8
13	.98189	999.5	46	.93938	998.3	79	.86393	997.8
14	.98077	999.4	47	.93756	998 3	80	.86117	997.8
15	.97968	999.4	48	.93568	998.3	81	.85838	997.8
16	.97861	999.4	49	.93378	998.2	82	.85554	997.8
17	.97755	999 3	50	.93187	998 2	83	.85268	997.8
18	.97649	999.3	51	.92994	998.2	84	.84978	997.8
19	.97542	999.3	52	.92790	998.2	85	.84684	997.8
20	.97435	999 2	53	.92586	998.2	86	.84390	997.8
21	.97329	999.2	54	.92380	998.1	87	.84080	997.7
22	.97222	999.1	55	.92171	998.1	88	.83765	997.7
23	.97117	999.1	56	.91960	998.1	89	.83449	997.7
24	.97013	999.1	57	.91747	998.1	90	.83119	997 7
25	.96907	999.0	58	.91530	998.1	91	.82780	997.7
26	.96797	999.0	59	.91311	998.1	92	.82441	997.7
27	.96687	999.0	60	.91088	998.1	93	.82100	997.7
28	.96576	998.9	61	.90862	998.0	94	.81726	997.7
29	.96460	998 9	62	.90636	998.0	95	.81338	997.7
30	.96342	998.8	63	.90410	998.0	96	.80936	997.7
31	.96223	998.8	64	.90181	998.0	97	.80523	997.6
32	.96096	998 8	65	.89950	998.0	98	.80096	997.6
33	.95969	998.7	66	.89712	998.0	99	.79656	997.6
						100	.79203	997.6

TABLE VIII—Continued.

Temperature 65°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99721	999.5	34	.95804	998.3	67	.89427	997.5
2	.99578	999.5	35	.95666	998.3	68	.89185	997.4
3	.99435	999.5	36	.95525	998.2	69	.88944	997.4
4	.99293	999.5	37	.95376	998.2	70	.88693	997.4
5	.99150	999.5	38	.95227	998.1	71	.88442	997.4
6	.99020	999.5	39	.95075	998.1	72	.88189	997.4
7	.98893	999.5	40	.94923	998.1	73	.87936	997.4
8	.98768	999.4	41	.94760	998.0	74	.87679	997.4
9	.98642	999.4	42	94594	998.0	75	.87418	997.3
10	.98516	999.4	43	.94424	998.0	76	.87155	997.3
11	.98402	999.4	44	.94252	997.9	77	.86888	997.3
12	.98290	999.4	45	.94077	997.9	78	.86622	997.3
13	.98176	999.3	46	.93898	997.9	79	.86346	997.3
14	.98063	999.3	47	.93716	997.9	80	.86070	997.3
15	.97953	999.2	48	.93527	997.8	81	.85791	997.3
16	.97846	999.2	49	.93337	997.8	82	.85507	997.3
17	.97739	999.2	50	.93145	997.8	83	.85221	997.2
18	.97632	999.1	51	.92952	997.8	84	.84931	997.2
19	.97524	999.1	52	.92748	997.7	85	.84636	997.2
20	.97416	999.0	53	.92543	997.7	86	.84342	997.2
21	.97309	999.0	54	.92337	997.7	87	.84032	997.2
22	.97201	998.9	55	.92128	997.7	88	.83717	997.2
23	.97095	998.9	56	.91917	997.6	89	.83401	997.1
24	.96990	998.8	57	.91703	997.6	90	.83071	997.1
25	.96884	998.8	58	.91486	997.6	91	.82732	997.1
26	96773	998.8	59	.91267	997.6	92	.82393	997.1
27	.96662	998.7	60	.91044	997.6	93	.82052	997.1
28	.96550	998.7	61	.90818	997.6	94	.81678	997.1
29	.96433	998.6	62	.90591	997.5	95	.81290	997.1
30	.96314	998.6	63	.90365	957.5	96	.80888	997.1
31	.96194	998.5	64	.90136	997.5	97	.80475	997.1
32	.96066	998.5	65	.89905	997.5	98	.80048	997.1
33	.95938	998.4	66	.89667	997.5	99	.79608	997.1
						100	.79156	997.1

TABLE VIII—Continued

Temperature 66°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99710	999.4	34	.95771	998.0	67	.89381	996.9
2	.99566	999.4	35	.95633	998.0	68	.89139	996.9
3	.99423	999.4	36	.95491	997.9	69	.88897	996.9
4	.99281	999.4	37	.95341	997.8	70	.88646	996.9
5	.99138	999.4	38	.95190	997.7	71	.88395	996.9
6	.99008	999.4	39	.95038	997.7	72	.88142	996.9
7	.98881	999.3	40	.94886	997.7	73	.87889	996 8
8	.98755	999.3	41	.94722	997.6	74	.87632	996.8
9	.98629	999.3	42	.94556	997.6	75	.87371	996.8
10	.98502	999.3	43	.94385	997.6	76	.87108	996.8
11	.98388	999.2	44	.94212	997.5	77	.86841	996.8
12	.98275	999.2	45	.94037	997.5	78	.86575	996.8
13	.98161	999.2	46	.93858	997.4	79	.86299	996.7
14	.98047	999.1	47	.93675	997.4	80	.86022	996.7
15	.97937	999.0	48	.93486	997.4	81	.85743	996.7
16	.97829	999.0	49	.93295	997.4	82	.85459	996.7
17	.97721	999.0	50	.93103	997.3	83	.85173	996.7
18	.97614	998.9	51	.92910	997.3	84	.84883	996.7
19	.97505	998.9	52	.92705	997.3	85	.84588	996.6
20	.97395	998.8	53	.92500	997.2	86	.84294	996.6
21	.97287	998.7	54	.92293	997.2	87	.83984	996.6
22	.97178	998.7	55	.92084	997.2	88	.83669	996.6
23	.97072	998.6	56	.91873	997 2	89	.83353	996.6
24	.96966	998.6	57	.91659	997.1	90	.83023	996.6
25	.96860	998.6	58	.91442	997.1	91	.82684	996.5
26	.96748	998.5	59	.91222	997.1	92	.82345	996.5
27	.96636	998.4	60	.90999	997.1	93	.82004	996.5
28	.96523	998.4	61	.90773	997.1	94	.81630	996.5
29	.96405	998.3	62	.90546	997.0	95	.81242	996.5
30	.96285	998.3	63	.90320	997.0	96	.80841	996.5
31	.96164	998.2	64	.90091	997.0	97	.80428	996.5
32	.96035	998.1	65	.89859	997.0	98	.80000	996.5
33	.95906	998.1	66	.89621	997.0	99	.79560	996.4
						100	.79109	996.5

TABLE VIII—Continued.

Temperature 67°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99698	999.3	34	.95739	997.7	67	.89335	996.4
2	.99555	999.3	35	.95599	997.6	68	.89093	996.4
3	.99412	999.3	36	.95457	997.5	69	.88851	996.4
4	.99269	999.3	37	.95305	997.5	70	.88600	996.4
5	.99126	999.3	38	.95154	997.4	71	.88349	996.3
6	.98996	999.2	39	.95001	997.3	72	.88095	996.3
7	.98868	999.2	40	.94849	997.3	73	.87842	996.3
8	.98742	999.2	41	.94684	997.2	74	.87585	996.3
9	.98616	999.1	42	.94518	997.2	75	.87324	996.3
10	.98489	999.1	43	.94346	997.1	76	.87061	996.3
11	.98374	999.1	44	.94172	997.1	77	.86794	906.2
12	.98260	999.1	45	.93997	997.1	78	.86527	996.2
13	.98146	999,0	46	.93817	997.0	79	.86251	996.2
14	.98031	999.0	47	.93634	997.0	80	.85975	996.2
15	.97921	998.9	48	.93445	996.9	81	.85696	996.2
16	.97812	998.9	49	.93254	996.9	82	.85412	996.1
17	.97704	998.8	50	.93061	996.9	83	.85126	996.1
18	.97595	998.7	51	.92867	996.8	84	.84835	996.1
19	.97485	998.7	52	.92662	996.8	85	.84540	996 1
20	.97375	998.6	53	.92457	996.8	86	.84246	996.1
21	.97265	998.5	54	.92250	996.7	87	.83936	996 0
22	.97155	998.4	55	.92040	996.7	88	.83621	996.0
23	.97048	998.4	56	.91829	996.7	89	.83305	996.0
24	.96942	998.3	57	.91615	996.7	90	.82975	996.0
25	.96835	998.3	58	.91397	996.6	91	.82636	996.0
26	.96723	998.2	59	.91178	996.6	92	.82297	995.9
27	.96610	998.2	60	.90954	996.6	93	.81956	995.9
28	.96496	998.1	61	.90728	996.6	94	.81581	995.9
29	.96377	998.0	62	.90500	996.5	95	.81193	995.9
30	.96256	998.0	63	.90274	996.5	96	.80792	995.9
31	.96134	997.9	64	.90045	996.5	97	.80379	995 9
32	.96004	997.8	65	.89814	996.5	98	.79952	995.9
33	.95874	997.7	66	.89575	996.5	99	.79512	995.8
						100	.79061	995.9

TABLE VIII—Continued.

Temperature 68°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99687	999.2	34	.95706	997.3	67	.89288	995.9
2	.99543	999.2	35	.95566	997.3	68	.89046	995.9
3	.99400	999.2	36	.95422	997.2	69	.88804	995.9
4	.99258	999.2	37	.95270	997.1	70	.88553	995.8
5	.99115	999.1	38	.95117	997.0	71	.88302	995.8
6	.98983	999.1	39	.94965	996.9	72	.88049	995.8
7	.98856	999.1	40	.94811	996.9	73	.87796	995.8
8	.98730	999 0	41	.94647	996.8	74	.87538	995.8
9	.98602	999 0	42	.94479	996.8	75	.87277	995.7
10	.98475	999.0	43	.94306	996.7	76	.87014	995.7
11	.98360	999.0	44	.94133	996.7	77	.86746	995.7
12	.98246	998.9	45	.93957	996.6	78	.86480	995.7
13	.98130	998.9	46	.93777	996.6	79	.86204	995.6
14	.98016	998.8	47	.93593	996.5	80	.85927	995.6
15	.97904	998.7	48	.93403	996.5	81	.85648	995.6
16	.97795	998.7	49	.93212	996.5	82	.85364	995.6
17	.97686	998.6	50	.93019	996.4	83	.85078	995.6
18	.97577	998.6	51	.92825	996.4	84	.84788	995.5
19	.97466	998.5	52	.92619	996.3	85	.84493	995.5
20	.97354	998.4	53	.92414	996.3	86	.84198	995.5
21	.97243	998 3	54	.92206	996.3	87	.83888	995.5
22	.97132	998.2	55	.91997	996.2	88	.83573	995.5
23	.97025	998 2	56	.91785	996.2	89	.83257	995.4
24	.96918	998.1	57	.91570	996.2	90	.82926	995.4
25	.96811	998.1	58	.91353	996.2	91	.82587	995.4
26	.96697	998 0	59	.91133	996.1	92	.82248	995.4
27	.96583	997.9	60	.90910	996.1	93	.81908	995.3
28	.96469	997.8	61	.90682	996.1	94	.81533	995.3
29	.96349	997.7	62	.90455	996 0	95	.81145	995.3
30	.96227	997.7	63	.90229	996.0	96	.80744	995.3
31	.96105	997.6	64	.90000	996.0	97	.80331	995.3
32	.95974	997.5	65	.89768	996.0	98	.79904	995.3
33	.95843	997.4	66	.89530	996.0	99	.79464	995.3
						100	.79013	995.3

TABLE VIII—Continued.

Temperature 69°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99675	999.1	34	.95674	997 0	67	.89242	995.4
2	.99532	999.1	35	.95532	996.9	68	.89000	995.4
3	.99389	999.0	36	.95388	996.8	69	.88758	995.3
4	.99246	999.0	37	.95234	996.7	70	.88507	995.3
5	.99103	999.0	38	.95081	996.6	71	.88256	995.3
6	.98971	999.0	39	.94928	996.6	72	.88002	995.3
7	.98843	999.0	40	.94774	996.5	73	.87749	995.2
8	.98717	998.9	41	.94609	996.4	74	.87491	995.2
9	.98589	998.9	42	.94441	996.4	75	.87230	995.2
10	.98462	998.9	43	.94267	996.3	76	.86967	995.2
11	.98346	998.8	44	.94093	996.3	77	.86699	995.2
12	.98231	998.8	45	.93917	996.2	78	.86432	995.1
13	.98115	998.7	46	.93736	996.2	79	.86156	995.1
14	.98000	998.7	47	.93552	996.1	80	.85880	995.1
15	.97888	998.6	48	.93362	996.1	81	.85601	995.0
16	.97778	998.5	49	.93171	996.0	82	.85317	995.0
17	.97669	998 5	50	.92977	996.0	83	.85031	995.0
18	.97558	998.4	51	.92782	995.9	84	.84740	995 0
19	.97446	998.3	52	.92576	995.9	85	.84445	994.9
20	.97334	998.2	53	.92371	995.9	86	.84150	994.9
21	.97221	998 1	54	.92163	995.8	87	.83840	994.9
22	.97109	998.0	55	.91953	995.8	88	.83525	994.9
23	.97001	997.9	56	.91741	995.7	89	.83209	994.8
24	.96894	997.8	57	.91526	995.7	90	.82878	994.8
25	.96786	997.8	58	.91308	995.7	91	.82539	994.8
26	.96672	997.7	59	.91089	995.6	92	.82200	994.8
27	.96557	997.6	60	.90865	995.6	93	.81860	994.8
28	.96442	997.5	61	.90637	995 6	94	.81485	994.7
29	.96321	997.4	62	.90409	995.5	95	.81097	994.7
30	.96198	997.4	63	.90183	995.5	96	.80696	994.7
31	.96075	997.3	64	.89954	995.5	97	.80283	994.7
32	.95943	997.2	65	.89723	995.5	98	.79856	994.7
33	.95811	997.1	66	.89484	995 4	99	.79416	994.7
						100	.78965	994.7

TABLE VIII—Continued.

Temperature 70°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99664	999.0	34	.95641	996.7	67	.89196	994.9
2	.99520	998.9	35	.95499	996.6	68	.88954	994.8
3	.99377	998.9	36	.95354	996.5	69	.88711	994.8
4	.99234	998.9	37	.95199	996.3	70	.88460	994.8
5	.99091	998.9	38	.95044	996.2	71	.88209	994.8
6	.98959	998.9	39	.94891	996.2	72	.87955	994.7
7	.98831	998.8	40	.94737	996.1	73	.87702	994.7
8	.98704	998.8	41	.94571	996.1	74	.87444	994.7
9	.98576	998.8	42	.94403	996.0	75	.87183	994.7
10	.98448	998.7	43	.94228	995.9	76	.86920	994.6
11	.98332	998.7	44	.94053	995.8	77	.86652	994.6
12	.98216	998.6	45	.93877	995.8	78	.86385	994.6
13	.98100	998.6	46	.93696	995.7	79	.86109	994.6
14	.97984	998.5	47	.93511	995.7	80	.85832	994.5
15	.97872	998.4	48	.93321	995.6	81	.85553	994.5
16	.97761	998.4	49	.93129	995.6	82	.85269	994.5
17	.97651	998.3	50	.92935	995.5	83	.84983	994.4
18	.97540	998.2	51	.92740	995.5	84	.84692	994.4
19	.97427	998.1	52	.92533	995.4	85	.84397	994.4
20	.97313	998.0	53	.92328	995.4	86	.84102	994.4
21	.97199	997.8	54	.92119	995.3	87	.83792	994.3
22	.97086	997.7	55	.91909	995.3	88	.83477	994.3
23	.96978	997.7	56	.91697	995.3	89	.83161	994.3
24	.96870	997.6	57	.91482	995.2	90	.82830	994.2
25	.96762	997.6	58	.91264	995.2	91	.82491	994.2
26	.96647	997.5	59	.91044	995.2	92	.82152	994.2
27	.96531	997.4	60	.90820	995.1	93	.81811	994.2
28	.96415	997.3	61	.90592	995.1	94	.81436	994.2
29	.96293	997.2	62	.90364	995.0	95	.81049	994.1
30	.96169	997.1	63	.90138	995.0	96	.80649	994.1
31	.96045	997.0	64	.89909	995.0	97	.80234	994.1
32	.95912	996.9	65	.89677	995.0	98	.79808	994.1
33	.95779	996.7	66	.89438	994.9	99	.79368	994.0
						100	.78917	994.0

TABLE VIII—Continued.

Temperature 71°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99650	998.8	34	.95608	996.3	67	.89149	994.4
2	.99507	998.8	35	.95465	996.2	68	.88907	994.3
3	.99363	998.8	36	.95319	996.1	69	.88664	994.3
4	.99220	998.8	37	.95163	996.0	70	.88413	994.3
5	.99077	998.8	38	.95007	995.8	71	.88162	994.2
6	.98945	998.7	39	.94853	995.8	72	.87908	994.2
7	.98816	998.7	40	.94699	995.7	73	.87655	994.2
8	.98689	998.7	41	.94533	995.6	74	.87396	994.1
9	.98561	998.6	42	.94364	995.6	75	.87135	994.1
10	.98433	998.6	43	.94188	995.5	76	.86872	994.1
11	.98316	998.5	44	.94013	995.4	77	.86605	994.1
12	.98200	998.4	45	.93836	995.4	78	.86337	994.0
13	.98083	998.4	46	.93655	995.3	79	.86061	994.0
14	.97966	998.3	47	.93469	995.2	80	.85784	994.0
15	.97854	998.2	48	.93279	995.2	81	.85505	993.9
16	.97742	998.2	49	.93087	995.1	82	.85221	993.9
17	.97631	998.1	50	.92892	995.1	83	.84935	993.9
18	.97520	998.0	51	.92697	995.0	84	.84644	993.8
19	.97406	997.9	52	.92490	995.0	85	.84349	993.8
20	.97291	997.7	53	.92284	994.9	86	.84054	993.8
21	.97175	997.6	54	.92075	994.8	87	.83744	993.7
22	.97061	997.5	55	.91864	994.8	88	.83429	993.7
23	.96953	997.4	56	.91652	994.8	89	.83113	993.7
24	.96845	997.3	57	.91437	994.7	90	.82782	993.7
25	.96736	997.3	58	.91219	994.7	91	.82443	993.6
26	.96620	997.2	59	.90999	994.7	92	.82104	993.6
27	.96504	997.1	60	.90775	994.6	93	.81763	993.6
28	.96387	997.0	61	.90546	994.6	94	.81388	993.6
29	.96264	996.8	62	.90318	994.5	95	.81001	993.5
30	.96139	996.7	63	.90092	994.5	96	.80600	993.5
31	.96014	996.6	64	.89863	994.5	97	.80186	993.5
32	.95880	996.5	65	.89631	994.5	98	.79760	993.5
33	.95746	996.4	66	.89392	994.4	99	.79320	993.4
						100	.78869	993.4

TABLE VIII—Continued.

Temperature 72°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99637	998.7	34	.95574	996.0	67	.89103	993.8
2	.99493	998.7	35	.95430	995.8	68	.88860	993.8
3	.99350	998.6	36	.95284	995.7	69	.88617	993.8
4	.99206	998.6	37	.95127	995.6	70	.88366	993.7
5	.99063	998.6	38	.94970	995.4	71	.88115	993.7
6	.98931	998.6	39	.94816	995.4	72	.87861	993.7
7	.98802	998.5	40	.94661	995.3	73	.87607	993.6
8	.98674	998.5	41	.94494	995.2	74	.87349	993.6
9	.98546	998.5	42	.94325	995.2	75	.87088	993.6
10	.98418	998.4	43	.94184	995.1	76	.86824	993.5
11	.98300	998.3	44	.93972	995.0	77	.86558	993.5
12	.98183	998.3	45	.93795	994.9	78	.86289	993.5
13	.98066	998.2	46	.93614	994.9	79	.86013	993.4
14	.97949	998.1	47	.93428	994.8	80	.85736	993.4
15	.97836	998.1	48	.93279	994.7	81	.85457	993.4
16	.97723	998.0	49	.93044	994.7	82	.85173	993.4
17	.97612	997.9	50	.92850	994.6	83	.84887	993.3
18	.97500	997.8	51	.92654	994.6	84	.84596	993.3
19	.97385	997.6	52	.92447	994.5	85	.84301	993.2
20	.97268	997.5	53	.92240	994.4	86	.84005	993.2
21	.97152	997.4	54	.92031	994.4	87	.83695	993.2
22	.97036	997.2	55	.91820	994.3	88	.83380	993.2
23	.96928	997.2	56	.91608	994.3	89	.83064	993.1
24	.96819	997.1	57	.91393	994.3	90	.82734	993.1
25	.96710	997.1	58	.91175	994.2	91	.82394	993.1
26	.96594	996.9	59	.90954	994.2	92	.82055	993.0
27	.96504	996.8	60	.90729	994.1	93	.81715	993.0
28	.96359	996.7	61	.90501	994.1	94	.81340	993.0
29	.96235	996.5	62	.90272	994.0	95	.80952	992.9
30	.96109	996.4	63	.90046	994.0	96	.80552	992.9
31	.95983	996.3	64	.89817	994.0	97	.80138	992.9
32	.95849	996.2	65	.89585	994.0	98	.79712	992.9
33	.95714	996.1	66	.89346	993.9	99	.79272	992.8
						100	.78821	992.8

TABLE VIII—Continued.

Temperature 73°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99623	998.6	34	.95541	995.6	67	.89056	993.3
2	.99480	998.5	35	.95396	995.5	68	.88813	993.3
3	.99336	998.5	36	.95248	995.4	69	.88570	993.2
4	.99193	998.5	37	.95090	995.2	70	.88318	993.2
5	.99049	998.5	38	.94932	995.0	71	.88067	993.2
6	.98916	998.4	39	.94778	995.0	72	.87813	993.1
7	.98787	998.4	40	.94624	994.9	73	.87560	993.1
8	.98660	998.4	41	.94456	994.8	74	.87301	993.1
9	.98530	998.3	42	.94285	994.7	75	.87040	993.0
10	.98402	998.3	43	.94109	994.6	76	.86777	993.0
11	.98284	998.2	44	.93932	994.5	77	.86510	993.0
12	.98167	998.1	45	.93755	994.5	78	.86242	992.9
13	.98049	998.0	46	.93572	994.4	79	.86965	992.9
14	.97931	998.0	47	.93386	994.3	80	.85689	992.8
15	.97817	997.9	48	.93196	994.3	81	.85409	992.8
16	.97705	997.8	49	.93002	994.2	82	.85125	992.8
17	.97592	997.7	50	.92807	994.2	83	.84839	992.8
18	.97479	997.6	51	.92612	994.1	84	.84548	992.7
19	.97363	997.4	52	.92403	994.0	85	.84252	992.7
20	.97246	997.3	53	.92197	994.0	86	.83957	992.6
21	.97128	997.1	54	.91987	993.9	87	.83647	992.6
22	.97012	997.0	55	.91775	993.8	88	.83332	992.6
23	.96903	996.9	56	.91563	993.8	89	.83016	992.5
24	.96794	996.8	57	.91348	993.8	90	.82685	992.5
25	.96685	996.8	58	.91130	993.7	91	.82346	992.5
26	.96567	996.6	59	.90909	993.7	92	.82007	992.4
27	.96449	996.5	60	.90684	993.6	93	.81666	992.4
28	.96330	996.4	61	.90455	993.6	94	.81291	992.4
29	.96205	996.2	62	.90227	993.5	95	.80903	992.3
30	.96079	996.1	63	.90001	993.5	96	.80504	992.3
31	.95953	996.0	64	.89771	993.5	97	.80090	992.3
32	.95817	995.9	65	.89539	993.4	98	.79663	992.2
33	.95681	995.7	66	.89299	993.4	99	.79224	992.2
						100	.78773	992.2

TABLE VIII—Continued.

Temperature 74°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.98610	998.4	34	.95507	995.3	67	.89010	992.8
2	.99466	998.4	35	.95361	995.1	68	.88766	992.7
3	.99323	998.4	36	.95213	995.0	69	.88523	992.7
4	.99179	998.4	37	.95054	994.8	70	.88271	992.7
5	.99035	998.3	38	.94895	994.7	71	.88020	992.6
6	.98902	998.3	39	.94741	994.6	72	.87766	992.6
7	.98773	998.2	40	.94586	994.5	73	.87512	992.6
8	.98645	998.2	41	.94417	994.4	74	.87254	992.5
9	.98515	998.1	42	.94246	994.3	75	.86993	992.5
10	.98387	998.1	43	.94069	994.2	76	.86729	992.5
11	.98268	998.0	44	.93891	994.1	77	.86463	992.4
12	.98150	997.9	45	.93714	994.1	78	.86194	992.4
13	.98032	997.9	46	.93531	994.0	79	.85917	992.3
14	.97914	997.8	47	.93345	993.9	80	.85641	992.3
15	.97799	997.7	48	.93154	993.8	81	.85361	992.3
16	.97686	997.6	49	.92959	993.8	82	.85077	992.2
17	.97573	997.5	50	.92765	993.7	83	.84791	992.2
18	.97459	997.4	51	.92569	993.6	84	.84500	992.2
19	.97342	997.2	52	.92360	993.6	85	.84204	992.1
20	.97223	997.0	53	.92153	993.5	86	.83908	992.1
21	.97105	996.9	54	.91943	993.4	87	.83598	992.0
22	.96987	996.7	55	.91731	993.4	88	.83283	992.0
23	.96878	996.6	56	.91519	993.3	89	.82967	992.0
24	.96768	996.6	57	.91304	993.3	90	.82637	991.9
25	.96659	996.5	58	.91086	993.2	91	.82297	991.9
26	.96541	996.4	59	.90864	993.2	92	.81958	991.9
27	.96421	996.2	60	.90638	993.1	93	.81617	991.8
28	.96302	996.1	61	.90410	993.1	94	.81242	991.8
29	.96176	995.9	62	.90181	993.0	95	.80854	991.8
30	.96049	995.8	63	.89955	993.0	96	.80455	991.7
31	.95922	995.7	64	.89725	993.0	97	.80041	991.7
32	.95786	995.5	65	.89493	992.9	98	.79614	991.6
33	.95649	995.4	66	.89253	992.9	99	.79175	991.6
						100	.78724	991.6

TABLE VIII—Continued.

Temperature 75°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99596	998.3	34	.95474	994.9	67	.88963	992.3
2	.99453	998.3	35	.95327	994.7	68	.88719	992.2
3	.99309	998.2	36	.95178	994.6	69	.88476	992.2
4	.99165	998.2	37	.95018	994.4	70	.88224	992.1
5	.99021	998.2	38	.94858	994.3	71	.87973	992.1
6	.98888	998.2	39	.94703	994.2	72	.87719	992.1
7	.98758	998.1	40	.94548	994.1	73	.87465	992.0
8	.98630	998.1	41	.94379	994.0	74	.87206	992.0
9	.98500	998.0	42	.94207	993.9	75	.86945	992.0
10	.98372	998.0	43	.94029	993.8	76	.86681	991.9
11	.98252	997.9	44	.93851	993.7	77	.86414	991.9
12	.98134	997.8	45	.93673	993.6	78	.86146	991.8
13	.98015	997.7	46	.93490	993.5	79	.85869	991.8
14	.97896	997.6	47	.93303	993.5	80	.85593	991.7
15	.97781	997.5	48	.93112	993 4	81	.85313	991.7
16	.97667	997.4	49	.92917	993.3	82	.85029	991.7
17	.97553	997.3	50	.92722	993.2	83	.84743	991.6
18	.97439	997.2	51	.92526	993.1	84	.84452	991.6
19	.97321	997.0	52	.92317	993.1	85	.84156	991.5
20	.97201	996.8	53	.92109	993.0	86	.83860	991.5
21	.97081	996.6	54	.91899	992.9	87	.83550	991.4
22	.96962	996.5	55	.91686	992.9	88	.83235	991.4
23	.96853	996.4	56	.91474	992.8	89	.82919	991.4
24	.96743	996.3	57	.91259	992.8	90	.82589	991.4
25	.96633	996 2	58	.91041	992.8	91	.82249	991.3
26	.96514	996.1	59	.90819	992.7	92	.81910	991.3
27	.96394	995.9	60	.90593	992.7	93	.81568	991.2
28	.96274	995.8	61	.90364	992.6	94	.81193	991.2
29	.96147	995.6	62	.90135	992.5	95	.80805	991.2
30	.96019	995.5	63	.89909	992.5	96	.80406	991.2
31	.95891	995.4	64	.89679	992.5	97	.79992	991.1
32	.95754	995.2	65	.89447	992.4	98	.79565	991.0
33	.95616	995.1	66	.89207	992.4	99	.79126	991.0
						100	.78675	991.0

Ex—8

TABLE VIII—Continued.

Temperature 76°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99581	998.1	34	.95440	994.5	67	.88916	991.7
2	.99438	998.1	35	.95292	994.4	68	.88672	991.7
3	.99293	998.1	36	.95142	994.2	69	.88428	991.6
4	.99149	998.1	37	.94981	994.1	70	.88176	991.6
5	.99005	998.0	38	.94820	993.9	71	.87925	991.6
6	.98872	998.0	39	.94665	993.8	72	.87671	991.5
7	.98742	997.9	40	.94509	993.7	73	.87417	991.5
8	.98613	997.9	41	.94340	993.6	74	.87158	991.4
9	.98483	997.8	42	.94167	993.5	75	.86897	991.4
10	.98355	997.8	43	.93988	993.4	76	.86633	991.4
11	.98234	997.7	44	.93820	993.3	77	.86367	991.3
12	.98116	997.6	45	.93632	993.2	78	.86098	991.3
13	.97996	997.5	46	.93448	993.1	79	.85821	991.2
14	.97877	997.4	47	.93261	993.0	80	.85545	991.2
15	.97761	997.3	48	.93069	992.9	81	.85265	991.1
16	.97646	997.2	49	.92874	992.9	82	.84981	991.1
17	.97532	997.1	50	.92679	992.8	83	.84695	991.1
18	.97417	996.9	51	.92483	992.7	84	.84404	991.0
19	.97298	996.8	52	.92229	992.6	85	.84108	991.0
20	.97177	996.6	53	.92065	992.5	86	.83811	990.9
21	.97056	996.4	54	.91854	992.5	87	.83501	990.9
22	.96936	996.2	55	.91641	992.4	88	.83186	990.8
23	.96826	996.1	56	.91429	992.3	89	.82870	990.8
24	.96716	996.0	57	.91214	992.3	90	.82540	990.8
25	.96606	995.9	58	.90995	992.3	91	.82200	990.7
26	.96486	995.8	59	.90773	992.2	92	.81861	990.7
27	.96365	995.6	60	.90547	992.2	93	.81519	990.6
28	.96244	995.5	61	.90318	992.1	94	.81145	990.6
29	.96117	995.3	62	.90089	992.0	95	.80759	990.6
30	.95988	995.2	63	.89863	992.0	96	.80357	990.6
31	.95859	995.0	64	.89633	991.9	97	.79944	990.5
32	.95721	994.9	65	.89401	991.9	98	.79516	990.4
33	.95583	994.7	66	.89160	991.8	99	.79078	990.4
						100	.78627	990.4

TABLE VIII—Continued.

Temperature 77°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99566	998.0	34	.95406	994.2	67	.88869	991.2
2	.99422	998.0	35	.95257	994.0	68	.88624	991.2
3	.99278	997.9	36	.95106	993.9	69	.88381	991.1
4	.99133	997.9	37	.94944	993.7	70	.88129	991.1
5	.98989	997.9	38	.94782	993.5	71	.87878	991.0
6	.98855	997.8	39	.94627	993.4	72	.87624	991.0
7	.98725	997.8	40	.94471	993.3	73	.87369	990.9
8	.98596	997.7	41	.94301	993.2	74	.87110	990.9
9	.98466	997.6	42	.94127	993.1	75	.86849	990.9
10	.98337	997.6	43	.93948	992.9	76	.86585	990.8
11	.98216	997.5	44	.93769	992.8	77	.86319	990.8
12	.98097	997.4	45	.93590	992.7	78	.86050	990.7
13	.97977	997.3	46	.93406	992.7	79	.85773	990.7
14	.97857	997.2	47	.93219	992.6	80	.85496	990.6
15	.97741	997.1	48	.93027	992.5	81	.85217	990.6
16	.97626	997.0	49	.92831	992.4	82	.84932	990.5
17	.97511	996.8	50	.92636	992.3	83	.84647	990.5
18	.97395	996.7	51	.92439	992.2	84	.84356	990.5
19	.97275	996.5	52	.92229	992.1	85	.84059	990.4
20	.97153	996.3	53	.92021	992.1	86	.83763	990.3
21	.97031	996.1	54	.91809	992.0	87	.83452	990.3
22	.96910	995.9	55	.91596	991.9	88	.83137	990.3
23	.96800	995.8	56	.91384	991.9	89	.82821	990.2
24	.96689	995.7	57	.91169	991.8	90	.82491	990.2
25	.96579	995.7	58	.90950	991.8	91	.82151	990.1
26	.96458	995.5	59	.90728	991.7	92	.81812	990.1
27	.96337	995.3	60	.90502	991.7	93	.81470	990.0
28	.96215	995.2	61	.90272	991.6	94	.81096	990.0
29	.96087	995.0	62	.90042	991.5	95	.80708	990.0
30	.95957	994.9	63	.89816	991.5	96	.80308	990.0
31	.95828	994.7	64	.89586	991.4	97	.79895	989.9
32	.95689	994.5	65	.89354	991.4	98	.79467	989.8
33	.95549	994.4	66	.89113	991.3	99	.79029	989.8
						100	.78579	989.8

TALLE VIII—Continued.

Temperature 78°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99551	997.8	34	.95371	993.8	67	.88821	990.7
2	.99407	997.8	35	.95222	993.7	68	.88577	990.6
3	.99262	997.8	36	.95070	993.5	69	.88333	990.6
4	.99118	997.7	37	.94907	993.3	70	.88081	990.5
5	.98973	997.7	38	.94744	993.1	71	.87830	990.5
6	.98839	997.7	39	.94588	993.0	72	.87576	990.5
7	.98709	997.6	40	.94432	992.9	73	.87322	990.4
8	.98580	997.6	41	.94261	992.8	74	.87063	990.3
9	.98449	997.5	42	.94088	992.7	75	.86801	990.3
10	.98320	997.4	43	.93907	992.5	76	.86538	990.3
11	.98199	997.3	44	.93727	992.4	77	.86270	990.2
12	.98079	997.2	45	.93549	992.3	78	.86001	990.2
13	.97958	997.1	46	.93365	992.2	79	.85724	990.1
14	.97838	997.0	47	.93176	992.1	80	.85448	990.1
15	.97721	996.9	48	.92984	992.0	81	.85168	990.0
16	.97605	996.8	49	.92789	991.9	82	.84884	990.0
17	.97489	996.6	50	.92592	991.9	83	.84598	989.9
18	.97374	996.5	51	.92396	991.8	84	.84307	989.9
19	.97253	996.3	52	.92185	991.7	85	.84011	989.8
20	.97129	996.1	53	.91976	991.6	86	.83714	989.8
21	.97005	995.9	54	.91765	991.5	87	.83404	989.7
22	.96883	995.6	55	.91551	991.4	88	.83089	989.7
23	.96773	995.6	56	.91338	991.4	89	.82773	989 6
24	.96662	995.5	57	.91123	991.3	90	.82442	989.6
25	.96551	995.4	58	.90904	991.3	91	.82102	989.5
26	.96431	995.2	59	.90682	991.2	92	.81763	989.5
27	.96308	995.1	60	.90456	991.2	93	.81421	989.4
28	.96185	994.9	61	.90226	991.1	94	.81047	989.4
29	.96056	994.7	62	.89996	991.0	95	.80659	989.4
30	.95927	994.5	63	.89770	951.0	96	.80259	989.3
31	.95796	994.4	64	.89540	990.9	97	.79846	989.2
32	.95656	994.2	65	.89308	990.9	98	.79418	989.2
33	.95516	994.0	66	.89067	990.8	99	.78980	989.1
						100	.78530	989.1

TABLE VIII—Continued.

Temperature 79°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99536	997.7	34	.95337	993.5	67	.88774	990.2
2	.99391	997.6	35	.95187	993.3	68	.88529	990.1
3	.99247	997.6	36	.95034	993.1	69	.88286	990.0
4	.99102	997.6	37	.94870	992.9	70	.88034	990.0
5	.98957	997.6	38	.94706	992.7	71	.87783	990.0
6	.98822	997.5	39	.94550	992.6	72	.87529	989.9
7	.98692	997.4	40	.94394	992.5	73	.87274	989.9
8	.98563	997.4	41	.94222	992 4	74	.87015	989.8
9	.98432	997.3	42	.94048	992.2	75	.86753	989.8
10	.98302	997.2	43	.93867	992.1	76	.86490	989.7
11	.98181	997.1	44	.93686	991.9	77	.86222	989.7
12	.98061	997.0	45	.93507	991.9	78	.85953	989.6
13	.97939	996.9	46	.93323	991.8	79	.85676	989.6
14	.97818	996.8	47	.93134	991.7	80	.85399	989.5
15	.97701	996.7	48	.92942	991.6	81	.85120	989.5
16	.97585	996.5	49	.92746	991.5	82	.84835	989.4
17	.97468	996.4	50	.92549	991.4	83	.84550	989.4
18	.97352	996.3	51	.92352	991.3	84	.84259	989.3
19	.96230	996.1	52	.92141	991.2	85	.83962	989.3
20	.96105	995.8	53	.91932	991.1	86	.83666	989.2
21	.96980	995.6	54	.91720	991.0	87	.83355	989.1
22	.96857	995.4	55	.91506	990.9	88	.83040	989.1
23	.96747	995.3	56	.91293	990.9	89	.82724	989.0
24	.96635	995.2	57	.91078	990.8	90	.82393	989.0
25	.96524	995.1	58	.90859	990.8	91	.82053	988.9
26	.96403	994.9	59	.90637	990.7	92	.81714	988.9
27	.96280	994 8	60	.90411	990.7	93	.81372	988.8
28	.96156	994.6	61	.90180	990.6	94	.80998	988.8
29	.96026	994.4	62	.89949	990.5	95	.80610	988.8
30	.95896	994.2	63	.89723	990.4	96	.80210	988.7
31	.95765	994.0	64	.89493	990.4	97	.79797	988.6
32	.95624	993.9	65	.89261	990.4	98	.79369	988.6
33	.95482	993.7	66	.89020	990.3	99	.78931	988.5
						100	.78481	988.5

TABLE VIII—Continued.

Temperature 80°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99521	997.5	34	.95303	993.1	67	.88727	989.6
2	.99376	997.5	35	.95152	992.9	68	.88482	989.6
3	.99231	997.5	36	.94998	992.7	69	.88238	989.5
4	.99086	997.4	37	.94833	992.5	70	.87986	989.5
5	.98941	997.4	38	.94668	992.3	71	.87735	989.4
6	.98806	997.3	39	.94512	992.2	72	.87481	989.4
7	.98676	997.3	40	.94355	992.1	73	.87226	989.3
8	.98546	997.2	41	.94183	992.0	74	.86967	989.3
9	.98415	997.1	42	.94008	991.8	75	.86705	989.2
10	.98285	997.1	43	.93826	991.7	76	.86442	989.2
11	.98163	997.0	44	.93645	991.5	77	.86173	989.1
12	.98042	996.8	45	.93466	991.4	78	.85905	989.1
13	.97920	996.7	46	.93281	991.3	79	.85628	989.0
14	.97799	996.6	47	.93092	991.2	80	.85351	988.9
15	.97681	996.5	48	.92899	991.1	81	.85072	988.9
16	.97564	996.3	49	.92703	991.0	82	.84787	988.9
17	.97447	996.2	50	.92506	990.9	83	.84502	988.8
18	.97330	996.1	51	.92309	990.9	84	.84211	988.8
19	.97207	995.8	52	.92097	990.7	85	.83914	988.7
20	.97081	995.6	53	.91888	990.6	86	.83617	988.6
21	.96955	995.3	54	.91675	990.5	87	.83306	988.6
22	.96831	995.1	55	.91461	990.5	88	.82991	988.5
23	.96720	995.0	56	.91248	990.4	89	.82675	988.5
24	.96668	994.9	57	.91033	990.3	90	.82344	988.4
25	.96497	994.8	58	.90813	990.3	91	.82004	988.3
26	.96375	994.6	59	.90591	990.2	92	.81665	998.3
27	.96251	994.5	60	.90365	990.2	93	.81323	988.2
28	.96126	994.3	61	.90134	990.1	94	.80949	988.2
29	.95996	994.1	62	.89903	990.0	95	.80561	988.2
30	.95865	993.9	63	.89677	989.9	96	.80161	988.1
31	.95733	993.7	64	.89447	989.9	97	.79748	988.0
32	.95591	993.5	65	.89215	989.9	98	.79320	988.0
33	.95449	993.3	66	.88973	989.8	99	.78882	987.9
						100	.78432	987.9

TABLE VIII—Continued.

Temperature 81°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99504	997.3	34	.95268	992.8	67	.88679	989.1
2	.99359	997.3	35	.95116	992.6	68	.88434	989.0
3	.99213	997.3	36	.94961	992.4	69	.88190	989.0
4	.99068	997.2	37	.94795	992.1	70	.87938	988.9
5	.98923	997.2	38	.94629	991.9	71	.87687	988.9
6	.98788	997.1	39	.94473	991.8	72	.87433	988.8
7	.98658	997.1	40	.94316	991.7	73	.87178	988.8
8	.98527	997.0	41	.94143	991.5	74	.86919	988.7
9	.98396	996.9	42	.93968	991.4	75	.86657	988.7
10	.98266	996.9	43	.93785	991.2	76	.86394	988.6
11	.98143	996.8	44	.93603	991.1	77	.86124	988.6
12	.98022	996.6	45	.93424	991.0	78	.85856	988.5
13	.97899	996.5	46	.93239	990.9	79	.85579	988.4
14	.97778	996.4	47	.93049	990.8	80	.85302	988.4
15	.97659	996.3	48	.92856	990.7	81	.85023	988.3
16	.97542	996.1	49	.92670	990.6	82	.84738	988.3
17	.97424	996.0	50	.92462	990.5	83	.84454	988.2
18	.97307	995.8	51	.92265	990.4	84	.84162	988.2
19	.97183	995.6	52	.92053	990.3	85	.83865	988.1
20	.97055	995.3	53	.91843	990.2	86	.83568	988.0
21	.96928	995.1	54	.91630	990.0	87	.83257	988.0
22	.96803	994.8	55	.91415	990.0	88	.82942	987.9
23	.96692	994.7	56	.91202	989.9	89	.82626	987.9
24	.96580	994.6	57	.90987	989.8	90	.82295	987.8
25	.96469	994.5	58	.90767	989.8	91	.81955	987.8
26	.96346	994.3	59	.90545	989.7	92	.81616	987.7
27	.96221	994.2	60	.90319	989.6	93	.81274	987.6
28	.96095	994.0	61	.90087	989.5	94	.80900	987.6
29	.95965	993.7	62	.89856	989.4	95	.80512	987.6
30	.95833	993.6	63	.89630	989.4	96	.80112	987.5
31	.95700	993.4	64	.89400	989.4	97	.79699	987.4
32	.95557	993.2	65	.89168	989.3	98	.79271	987.4
33	.95415	993.0	66	.88926	989.2	99	.78833	987.3
						100	.78383	987.3

TABLE VIII—Continued.

Temperature 82°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99487	997.2	34	.95232	992.4	67	.88632	988.6
2	.99341	997.1	35	.95080	992.2	68	.88386	988.5
3	.99196	997.1	36	.94924	992.0	69	.88142	988.4
4	.99050	997.1	37	.94757	991.7	70	.87890	988.4
5	.98905	997.0	38	.94591	991.5	71	.87639	988.3
6	.98770	997.0	39	.94434	991.4	72	.87385	988.3
7	.98639	996.9	40	.94277	991.3	73	.87130	988.2
8	.98508	996.8	41	.94103	991.1	74	.86871	988.2
9	.98377	996.7	42	.93927	991.0	75	.86609	988.1
10	.98247	996.7	43	.93744	990.8	76	.86345	988.1
11	.98124	996.6	44	.93561	990.6	77	.86076	988.0
12	.98002	996.4	45	.93382	990.5	78	.85808	987.9
13	.97879	996.3	46	.93197	990.4	79	.85531	987.9
14	.97757	996.2	47	.93006	990.3	80	.85253	987.8
15	.97637	996.0	48	.92813	990.2	81	.84974	987.8
16	.97519	995.9	49	.92617	990.1	82	.84690	987.7
17	.97400	995.7	50	.92419	990 0	83	.84405	987.7
18	.97283	995.6	51	.92221	989.9	84	.84114	987.6
19	.97158	995.3	52	.92008	989.8	85	.83816	987.5
20	.97030	995.1	53	.91798	989.7	86	.83519	987.5
21	.96901	994.8	54	.91585	989.5	87	.83208	987.4
22	.96775	994.5	55	.91370	989.5	88	.82893	987.3
23	.96664	994.4	56	.91156	989.4	89	.82577	987.3
24	.96552	994.3	57	.90942	989.3	90	.82245	987.2
25	.96440	994.2	58	.90722	989.3	91	.81906	987.2
26	.96317	994.0	59	.90499	989.2	92	.81566	987.1
27	.96191	993.8	60	.90272	989.1	93	.81225	987.0
28	.96065	993.6	61	.90041	989.0	94	.80851	987.0
29	.95933	993.4	62	.89809	988.9	95	.80463	987.0
30	.95801	993.2	63	.89583	988.9	96	.80063	986.9
31	.95667	993.0	64	.89353	988.9	97	.79649	986.8
32	.95524	992.8	65	.89121	988.8	98	.79222	986.8
33	.95380	992.6	66	.88879	988.7	99	.78784	986.7
						100	.78334	986.7

TABLE VIII—Continued.

Temperature 83°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99469	997.0	34	.95197	992.0	67	.88584	988.0
2	.99324	997.0	35	.95043	991 8	68	.88339	988.0
3	.99178	996.9	36	.94887	991.6	69	.88093	987.9
4	.99033	996.9	37	.94720	991.3	70	.87842	987.8
5	.98887	996.8	38	.94552	991 0	71	.87591	987.8
6	.98752	996.8	39	.94395	991.0	72	.87336	987.7
7	.98621	996.7	40	.94237	990.9	73	.87081	987.7
8	.98490	996.6	41	.94064	990.7	74	.86822	987.6
9	.98358	996.6	42	.93887	990.5	75	.86560	987.6
10	.98227	996.5	43	.93702	990.3	76	.86297	987.5
11	.98104	996.4	44	.93520	990.2	77	.86027	987.4
12	.97981	996.2	45	.93341	990.1	78	.85759	987.4
13	.97858	996.1	46	.93154	990.0	79	.85432	987.3
14	.97735	996.0	47	.92964	989.8	80	.85205	987.2
15	.97616	995.8	48	.92769	989.7	81	.84926	987.2
16	.97497	995.6	49	.92573	989.6	82	.84641	987.2
17	.97377	995.5	50	.92375	989.5	83	.84357	987.1
18	.97260	995.3	51	92177	989.4	84	.84065	987.1
19	.97134	995.1	52	.91964	989.3	85	.83767	987.0
20	.97004	994.8	53	.91754	989.2	86	.83469	986.9
21	.96875	994.5	54	.91539	989.1	87	.83158	986.8
22	.96748	994.2	55	.91324	989.0	88	.82843	986.8
23	.96636	994.2	56	.91111	988.9	89	.82527	986.7
24	.96524	994.0	57	.90896	988.9	90	.82097	986.6
25	.96412	993.9	58	.90676	988.8	91	.81857	986.6
26	.96287	993.7	59	.90453	988.7	92	.81517	986.6
27	.96161	993.5	60	.90226	988.6	93	.81176	986.4
28	.96034	993.3	61	.89994	988.5	94	.80802	986.4
29	.95902	993.1	62	.89762	988.4	95	.80413	986.3
30	.95769	992.9	63	.89536	988.4	96	.80013	986.3
31	.95635	992.7	64	.89307	988.3	97	.79599	986.2
32	.95490	992.5	65	.89074	988.3	98	.79173	986.1
33	.95346	992.2	66	.88831	988.2	99	.78735	986.0
						100	.78285	986.0

TABLE VIII—Continued.

Temperature 84°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99452	996.8	34	.95161	991.7	67	.88537	987.5
2	.99306	996.8	35	.95007	991.4	68	.88291	987.4
3	.99161	996.7	36	.94850	991.2	69	.88045	987.3
4	.99015	996.7	37	.94682	990.9	70	.87794	987.3
5	.98869	996.7	38	.94514	990.6	71	.87543	987.3
6	.98734	996.6	39	.94356	990.6	72	.87288	987.2
7	.98602	996.5	40	.94198	990.5	73	.87033	987.1
8	.98471	996.5	41	.94024	990.3	74	.86774	987.1
9	.98339	996.4	42	.93846	990.1	75	.86512	987.0
10	.98208	996.3	43	.93661	989.9	76	.86248	987.0
11	.98085	996.2	44	.93478	989.7	77	.85979	986.9
12	.97961	996.0	45	.93299	989.7	78	.85711	986.8
13	.97838	995.9	46	.93112	989.5	79	.85434	986.8
14	.97714	995.7	47	.92921	989.4	80	.85156	986.7
15	.97594	995.6	48	.92726	989.3	81	.84877	986.6
16	.97474	995.4	49	.92530	989.2	82	.84593	986.6
17	.97353	995.3	50	.92332	989.1	83	.84308	986.5
18	.97236	995.1	51	.92133	989.0	84	.84017	986.5
19	.97109	994.8	52	.91919	988.8	85	.83718	986.4
20	.96979	994.5	53	.91709	988.7	86	.83420	986.3
21	.96848	994.2	54	.91494	988.6	87	.83109	986.2
22	.96720	994.0	55	.91279	988.5	88	.82794	986.2
23	.96608	993.9	56	.91065	988.4	89	.82478	986.1
24	.96496	993.8	57	.90851	988.4	90	.82146	986.0
25	.96383	993.6	58	.90631	988.3	91	.81808	986.0
26	.96258	993.4	59	.90407	988.2	92	.81467	985.9
27	.96131	993.2	60	.90179	988.1	93	.81126	985.8
28	.96004	993.0	61	.89948	988.0	94	.80753	985.8
29	.95870	992.8	62	.89715	987.9	95	.80363	985.7
30	.95737	992.6	63	.89489	987.9	96	.79963	985.7
31	.95602	992.4	64	.89260	987.8	97	.79549	985.6
32	.95457	992.1	65	.89027	987.8	98	.79124	985.5
33	.95311	991.9	66	.88784	987.7	99	.78686	985.4
						100	.78235	985.4

TABLE VIII—Continued.

Temperature 85°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99435	996.7	34	.95126	991.3	67	.88489	987.0
2	.99289	996.6	35	.94971	991.1	68	.88243	986.9
3	.99143	996.6	36	.94813	990.8	69	.87997	986.8
4	.98997	996.5	37	.94644	990.5	70	.87746	986.8
5	.98851	996.5	38	.94475	990.2	71	.87495	986.7
6	.98716	996.4	39	.94317	990.1	72	.87240	986.7
7	.98584	996.3	40	.94159	990.0	73	.86985	986.6
8	.98452	996.3	41	.93984	989.9	74	.86726	986.5
9	.98320	996.2	42	.93806	989.7	75	.86464	986.5
10	.98189	996.1	43	.93620	989.5	76	.86200	986.4
11	.98065	996.0	44	.93436	989.3	77	.85930	986.3
12	.97941	995.8	45	.93257	989.2	78	.85662	986.3
13	.97817	995.7	46	.93070	989.1	79	.85385	986.2
14	.97693	995.5	47	.92878	988.9	80	.85107	986.1
15	.97572	995.4	48	.92683	988.8	81	.84828	986.1
16	.97452	995.2	49	.92487	988.7	82	.84544	986.0
17	.97333	995.0	50	.92288	988.6	83	.84260	986.0
18	.97213	994.9	51	.92089	988.5	84	.83968	985.9
19	.97085	994.6	52	.91875	988.3	85	.83669	985.8
20	.96953	994.3	53	.91664	988.2	86	.83371	985.7
21	.96821	994.0	54	.91449	988.1	87	.83060	985.6
22	.96692	993.7	55	.91233	988.0	88	.82745	985.6
23	.96580	993.6	56	.91019	987.9	89	.82429	985.5
24	.96468	993.5	57	.90805	987.9	90	.82097	985.4
25	.96355	993.4	58	.90585	987.8	91	.81759	985.4
26	.96229	993.1	59	.90361	987.7	92	.81418	985.3
27	.96101	992.9	60	.90133	987.6	93	.81076	985.2
28	.95973	992.7	61	.89901	987.5	94	.80700	985.2
29	.95839	992.5	62	.89668	987.4	95	.80313	985.1
30	.95705	992.2	63	.89442	987.3	96	.79913	985.1
31	.95569	992.0	64	.89213	987.3	97	.79499	985.0
32	.95423	991.8	65	.88980	987.2	98	.79074	984.9
33	.95277	991.5	66	.88737	987.1	99	.78636	984.8
						100	.78185	984.8

TABLE VIII—Continued.

Temperature 86°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99416	996.5	34	.95090	990.9	67	.88441	986.4
2	.99270	996.4	35	.94934	990.7	68	.88194	986.3
3	.99124	996.4	36	.94775	990.4	69	.87948	986.3
4	.98977	996·3	37	.94605	990.1	70	.87697	986.2
5	.98831	996.3	38	.94436	989.8	71	.87446	986.2
6	.98696	996.2	39	.94277	989.7	72	.87191	986.1
7	.98563	996.1	40	.94119	989.6	73	.86936	986.0
8	.98431	996.1	41	.93944	989.4	74	.86677	986.0
9	.98299	996.0	42	.93765	989.2	75	.86415	985.9
10	.98168	995.9	43	.93578	989.0	76	.86151	985.8
11	.98043	995.7	44	.93394	988.9	77	.85881	985.8
12	.97919	995.6	45	.93214	988.8	78	.85613	985.7
13	.97794	995.4	46	.93027	988.6	79	.85336	985.6
14	.97670	995.3	47	.92835	988.5	80	.85058	985.5
15	.97548	995.1	48	.92639	988.4	81	.84779	985.5
16	.97428	994.9	49	.92443	988.2	82	.84495	985.4
17	.97306	994.8	50	.92244	988.1	83	.84211	985.4
18	.97188	994.6	51	.92044	988.0	84	.83919	985.3
19	.97059	994.3	52	.91830	987.9	85	.83620	985.2
20	.96926	994.0	53	.91619	987.7	86	.83321	985.1
21	.96793	993.7	54	.91403	987.6	87	.83010	985.0
22	.96692	993.4	55	.91187	987.5	88	.82695	985.0
23	.96580	993.3	56	.90973	987.4	89	.82379	984.9
24	.96438	993·2	57	.90759	987.4	90	.82048	984.8
25	.96325	993.0	58	.90539	987.3	91	.81709	984.8
26	.96199	992.8	59	.90314	987.2	92	.81368	984.7
27	.96070	992.6	60	.90086	987.1	93	.81027	984.6
28	.95941	992.4	61	.89854	987.0	94	.80651	984.6
29	.95807	992.1	62	.89621	986.8	95	.80264	984.5
30	.95672	991.9	63	.89395	986.8	96	.79864	984.5
31	.95535	991.7	64	.89166	986.8	97	.79450	984.4
32	.95389	991.4	65	.88933	986.7	98	.79025	984.3
33	.95242	991.2	66	.88689	986.6	99	.78587	984.2
						100	.78136	984.2

TABLE VIII—Continued.

Temperature 87°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99397	996.3	34	.95054	990.5	67	.88393	985.9
2	.99251	996.2	35	.94897	990.3	68	.88146	985.8
3	.99104	996.2	36	.94738	990.0	69	.87899	985.7
4	.98958	996.1	37	.94567	989.7	70	.87648	985.7
5	.98811	996.1	38	.94396	989.4	71	.87398	985.6
6	.98676	996.0	39	.94238	989.3	72	.87142	985.5
7	.98543	995.9	40	.94079	989.2	73	.86887	985.5
8	.98411	995.8	41	.93903	989.0	74	.86628	985.4
9	.98278	995.8	42	.93724	988.8	75	.86366	985.3
10	.98147	995.7	43	.93536	988.6	76	.86102	985.3
11	.98022	995.5	44	.93351	988.4	77	.85832	985.2
12	.97897	995.4	45	.93172	988.3	78	.85564	985.1
13	.97772	995.2	46	.92984	988.2	79	.85287	985.1
14	.97647	995.1	47	.92791	988.0	80	.85009	985.0
15	.97525	994.9	48	.92596	987.9	81	.84729	984.9
16	.97404	994.7	49	.92399	987.8	82	.84446	984.9
17	.97282	994.5	50	.92200	987.6	83	.84162	984.8
18	.97162	994.3	51	.92000	987.5	84	.83870	984.8
19	.97033	994.1	52	.91785	987.4	85	.83571	984.6
20	.96898	993.7	53	.91574	987.3	86	.83272	984.5
21	.96764	993.4	54	.91358	987.1	87	.82961	984.5
22	.96633	993.1	55	.91141	987.0	88	.82646	984.4
23	.96521	993.0	56	.90926	986.9	89	.82330	984.3
24	.96408	992.8	57	.90713	986.9	90	.81998	984.3
25	.96295	992.7	58	.90492	986.8	91	.81659	984.2
26	.96168	992.5	59	.90267	986.7	92	.81318	984.1
27	.96039	992.3	60	.90039	986.6	93	.80977	984.0
28	.95909	992.0	61	.89807	986.5	94	.80602	984.0
29	.95774	991.8	62	.89573	986.3	95	.80215	984.9
30	.95639	991.6	63	.89347	986.3	96	.79814	984.9
31	.95502	991.3	64	.89118	986.3	97	.79401	983.8
32	.95354	991.1	65	.88885	986.2	98	.78976	984.7
33	.95207	990.8	66	.88641	986.1	99	.7-538	984.6
						100	.78087	984.6

TABLE VIII—Continued.

Temperature 88°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99377	996.1	34	.95018	990.2	67	.88344	985.4
2	.99231	996.0	35	.94861	989.9	68	.88097	985.3
3	.99085	996.0	36	.94700	989.6	69	.87851	985.2
4	.98938	995.9	37	.94528	989.3	70	.87600	985.1
5	.98792	995.9	38	.94357	989.0	71	.87349	985.1
6	.98655	995 8	39	.94198	988.9	72	.87094	985.0
7	.98522	995.7	40	.94040	988.8	73	.86839	984.9
8	.98390	995.6	41	.93863	988.6	74	.86579	984.8
9	.98258	995.5	42	.93682	988 4	75	.86317	984.8
10	.98125	995.4	43	.93495	988.1	76	.86052	984.7
11	.98000	995.3	44	.93309	988.0	77	.85783	984.6
12	.97874	995.1	45	.93129	987.9	78	.85514	984.6
13	.97749	995.0	46	.92941	987.7	79	.85237	984.5
14	.97624	994.8	47	.92748	987.5	80	.84959	984.4
15	.97501	994.6	48	.92558	987.4	81	.84680	984.3
16	.97380	994.5	49	.92355	987.3	82	.84397	984.3
17	.97257	994.3	50	.92155	987.2	83	.84114	984.3
18	.97137	994.1	51	.91955	987.1	84	.83821	984.2
19	.97006	993.8	52	.91740	986.9	85	.83521	984.1
20	.96871	993.4	53	.91528	986.8	86	.83222	983.9
21	.96736	993.1	54	.91312	986.6	87	.82911	983.9
22	.96604	992.8	55	.91094	986.5	88	.82596	983.8
23	.96491	992.7	56	.90880	986.4	89	.82280	983.7
24	.96379	992.5	57	.90666	986.4	90	.81949	983.7
25	.96266	992.4	58	.90446	986.3	91	.81610	983.6
26	.96138	992.2	59	.90221	986.2	92	.81269	983.5
27	.96008	992.0	60	.89993	986.1	93	.80927	983.4
28	.95878	991.7	61	.89759	985.9	94	.80552	983.4
29	.95742	991.4	62	.89526	985.8	95	.80165	983.3
30	.95606	991.2	63	.89300	985.8	96	.79764	983.2
31	.95468	991.0	64	.89071	985.7	97	.79351	983.1
32	.95320	990.7	65	.88838	985 7	98	.78926	983.0
33	.95171	990.4	66	.88594	985.5	99	.78488	982.9
						100	.78037	982.9

TABLE VIII—Continued.

Temperature 89°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99358	995.9	34	.94982	989.8	67	.88296	984.8
2	.99212	995.8	35	.94824	989.5	68	.88049	984.7
3	.99065	995.8	36	.94663	989.2	69	.87802	984.6
4	.98919	995.7	37	.94490	988.9	70	.87551	984.6
5	.98772	995.7	38	.94317	988.6	71	.87301	984.5
6	.98635	995.6	39	.94159	988.5	72	.87045	984.4
7	.98502	995.5	40	.94000	988.4	73	.86790	984.4
8	.98370	995.4	41	.93822	988.2	74	.86530	984.3
9	.98237	995.3	42	.93641	987.9	75	.86268	984.2
10	.98104	995.2	43	.93453	987.7	76	.86003	984.2
11	.97979	995.1	44	.93266	987.5	77	.85734	984.1
12	.97852	994.9	45	.93087	987.4	78	.85465	984.0
13	.97727	994.8	46	.92898	987.2	79	.85188	983.9
14	.97601	994.6	47	.92704	987.1	80	.84910	983.8
15	.97478	994.4	48	.92552	987.0	81	.84630	983.8
16	.97356	994.2	49	.92355	986.8	82	.84348	983.7
17	.97233	994.0	50	.92155	986 7	83	.84065	983.7
18	.97111	993 8	51	.91911	986.6	84	.83772	983.6
19	.96980	993.5	52	.91695	986 4	85	.83472	983.5
20	.96843	993.1	53	.91483	986.3	86	.83173	983.4
21	.96707	992.8	54	.91267	986.1	87	.82862	983.3
22	.96574	992.5	55	.91048	986 0	88	.82547	983.2
23	.96462	992.4	56	.90833	985 9	89	.82231	983.2
24	.96349	992 2	57	.90620	985.8	90	.81899	983.1
25	.96236	992.1	58	.90399	985.8	91	.81560	983.0
26	.95107	991.9	59	.90174	985.6	92	.81219	982.9
27	.95977	991.6	60	.89946	985.6	93	.80877	982.8
28	.95846	991.4	61	.89712	985.4	94	.80502	982.8
29	.95709	991.1	62	.89478	985.3	95	.80115	982.7
30	.95573	990.9	63	.89252	985.2	96	.79714	982.6
31	.95435	990.6	64	.89023	985.2	97	.79301	982.5
32	.95285	990.3	65	.88790	985.1	98	.78876	982.4
33	.95136	990.1	66	.88546	985.0	99	.78438	982.3
						100	.77987	982.3

TABLE VIII—Continued.

Temperature 90°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99339	995.7	34	.94946	989.4	67	.88248	984.3
2	.99193	995.7	35	.94787	989.1	68	.88000	984.2
3	.99046	995.6	36	.94625	988.8	69	.87753	984.1
4	.98899	995.5	37	.94451	988.5	70	.87502	984.0
5	.98752	995.5	38	.94278	988.2	71	.87252	984.0
6	.98615	995.4	39	.94119	988.1	72	.86996	983.9
7	.98481	995.3	40	.93960	988.0	73	.86741	983.8
8	.98349	995.2	41	.93782	987.7	74	.86481	983.7
9	.98216	995.1	42	.93600	987.5	75	.86219	983.7
10	.98083	995.0	43	.93411	987.3	76	.85954	983.6
11	.97957	994.9	44	.93224	987.1	77	.85685	983.5
12	.97830	994.7	45	.93044	987.0	78	.85416	983.4
13	.97704	994.5	46	.92855	986.8	79	.85139	983.3
14	.97578	994.4	47	.92661	986.6	80	.84861	983.3
15	.97454	994.2	48	.92465	986.5	81	.84581	983.2
16	.97332	994.0	49	.92267	986.4	82	.84299	983.2
17	.97209	993.8	50	.92067	986.2	83	.84016	983.1
18	.97086	993.6	51	.91866	986.1	84	.83723	983.0
19	.96954	993.2	52	.91650	985.9	85	.83423	982.9
20	.96816	992.9	53	.91438	985.8	86	.83123	982.8
21	.96679	992.5	54	.91221	985.6	87	.82812	982.7
22	.96545	992.2	55	.91002	985.5	88	.82497	982.6
23	.96432	992.1	56	.90787	985.4	89	.82181	982.6
24	.96319	991.9	57	.90574	985.3	90	.81850	982.5
25	.96206	991.8	58	.90353	985.3	91	.81510	982.4
26	.96077	991.6	59	.90127	985.1	92	.81169	982.3
27	.95946	991.3	60	.89899	985.0	93	.80827	982.2
28	.95814	991.0	61	.89665	984.9	94	.80452	982.1
29	.95677	990.8	62	.89431	984.8	95	.80065	982.0
30	.95540	990.5	63	.89205	984.7	96	.79664	981.9
31	.95401	990.3	64	.88976	984.7	97	.79251	981.8
32	.95251	990.0	65	.88743	984.6	98	.78826	981.7
33	.95101	989.7	66	.88498	984.5	99	.78388	981.7
						100	.77937	981.6

TABLE VIII—Continued.

Temperature 91°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99318	995.5	34	.94909	989.0	67	.88200	983.8
2	.99172	995.4	35	.94749	988.7	68	.87951	983.6
3	.99024	995.4	36	.94586	988.4	69	.87704	983.5
4	.98877	995.3	37	.94412	988.1	70	.87453	983.5
5	.98730	995.3	38	.94238	987.8	71	.87203	983.4
6	.98615	995.2	39	.94079	987.6	72	.86947	983.3
7	.98459	995.1	40	.93920	987.5	73	.86692	983.3
8	.98326	995.0	41	.93741	987.3	74	.86432	983.2
9	.98193	994.9	42	.93558	987.1	75	.86170	983.1
10	.98060	994.8	43	.93368	986.8	76	.85905	983.0
11	.97933	994.6	44	.93181	986.6	77	.85635	982.9
12	.97806	994.4	45	.93001	986.5	78	.85366	982.9
13	.97679	994.3	46	.92811	986.3	79	.85089	982.8
14	.97553	994.1	47	.92617	986.1	80	.84811	982.7
15	.97429	993.9	48	.92421	986.0	81	.84532	982.6
16	.97306	993.7	49	.92222	985.9	82	.84250	982.6
17	.97183	993.5	50	.92022	985.7	83	.83967	982.6
18	.97059	993.3	51	.91821	985.6	84	.83674	982.5
19	.96926	993.0	52	.91604	985.4	85	.83373	982.3
20	.96787	992.6	53	.91392	985.3	86	.83073	982.2
21	.96649	992.2	54	.91175	985.1	87	.82762	982.1
22	.96514	991.8	55	.90955	985.0	88	.82447	982.0
23	.96401	991.7	56	.90740	984.9	89	.82131	982.0
24	.96288	991.6	57	.90527	984.8	90	.81800	981.9
25	.96175	991.5	58	.90306	984.8	91	.81460	981.8
26	.96045	991.2	59	.90080	984.6	92	.81119	981.7
27	.95914	991.0	60	.89852	984.5	93	.80777	981.6
28	.95781	990.7	61	.89617	984.4	94	.80402	981.6
29	.95644	990.4	62	.89383	984.2	95	.80015	981.5
30	.95506	990.2	63	.89157	984.2	96	.79614	981.4
31	.95367	989.9	64	.88928	984.2	97	.79201	981.3
32	.95216	989.6	65	.88695	984.1	98	.78776	981.2
33	.95065	989.3	66	.88450	983.9	99	.78338	981.1
						100	.77888	981.1

TABLE VIII—Continued.

Temperature 92°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99297	995.3	34	.94872	988.6	67	.88151	983.2
2	.99151	995.2	35	.94711	988.3	68	.87902	983.1
3	.99003	995.2	36	.94548	988.0	69	.87654	983.0
4	.98855	995.1	37	.94373	987.7	70	.87404	982.9
5	.98708	995.0	38	.94198	987.3	71	.87154	982.9
6	.98571	994.9	39	.94038	987.2	72	.86898	982.8
7	.98436	994.8	40	.93879	987.1	73	.86643	982.7
8	.98303	994.8	41	.93700	986.9	74	.86383	982.6
9	.98170	994.7	42	.93516	986.6	75	.86120	982.5
10	.98037	994.5	43	.93326	986.4	76	.85855	982.5
11	.97910	994.4	44	.93138	986.1	77	.85586	982.4
12	.97782	994.2	45	.92958	986.0	78	.85317	982.3
13	.97655	994.0	46	.92768	985.9	79	.85040	982.2
14	.97528	993.8	47	.72573	985.7	80	.84762	982.1
15	.97403	993.6	48	.92376	985.5	81	.84482	982.0
16	.97280	993.4	49	.92178	985.4	82	.84200	982.0
17	.97156	993.2	50	.91977	985.3	83	.83918	982.0
18	.97032	993.0	51	.91776	985.1	84	.83624	981.9
19	.96898	992.7	52	.91559	984.9	85	.83324	981.7
20	.96758	992.3	53	.91346	984.8	86	.83023	981.6
21	.96619	991.9	54	.91128	984.6	87	.82712	981.5
22	.96483	991.5	55	.90908	984.5	88	.82397	981 4
23	.96370	991.4	56	.90693	984.4	89	.82081	981.4
24	.96257	991.3	57	.90480	984.3	90	.81750	981.3
25	.96144	991.2	58	.90259	984.2	91	.81410	981.2
26	.96014	990.9	59	.90033	984.1	92	.81069	981.1
27	.95882	990.6	60	.89805	984.0	93	.80727	981.0
28	.95748	990.4	61	.89570	983.9	94	.80352	981.0
29	.95610	990.1	62	.89335	983.7	95	.79965	980.9
30	.95472	989.8	63	.89109	983.7	96	.79564	930.8
31	.95332	989.6	64	.88880	983.6	97	.79151	980.7
32	.95181	989.2	65	.88647	983.5	98	.78726	980.6
33	.95029	988.9	66	.88401	983.4	99	.78288	980.5
						100	.77838	980.5

TABLE VIII—Continued.

Temperature 93°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99277	995.1	34	.94836	988.2	67	.88103	982.7
2	.99129	995.0	35	.94674	987.9	68	.87854	982.5
3	.98981	994.9	36	.94509	987.6	69	.87605	982.4
4	.98834	994.9	37	.94333	987.3	70	.87354	982.4
5	.98686	994.8	38	.94157	986.9	71	.87105	982.3
6	.98548	994.7	39	.93998	986.8	72	.86849	982.2
7	.98414	994.6	40	.93839	986.7	73	.86593	982.1
8	.98281	994.5	41	.93658	986.4	74	.86333	982.1
9	.98147	994.4	42	.93475	986.2	75	.86071	982.0
10	.98013	994 3	43	.93283	985.9	76	.85806	981.9
11	.97886	994.1	44	.93094	985.7	77	.85536	981.9
12	.97758	993.9	45	.92914	985.6	78	.85267	981.7
13	.97630	993.8	46	.92724	985.4	79	.84990	981.6
14	.97503	993.6	47	.92528	985.2	80	.84712	981.5
15	.97378	993.4	48	.92332	985.1	81	.84433	981.5
16	.97254	993.2	49	.92133	984.9	82	.84151	981.4
17	.97130	993.0	50	.91933	984.8	83	.83868	981.4
18	.97006	992.7	51	.91731	984.6	84	.83575	981.3
19	.96870	992.4	52	.91513	984.4	85	.83274	981.1
20	.96730	992.0	53	.91301	984.3	86	.82974	981.0
21	.96589	991.6	54	.91082	984.1	87	.82662	980.9
22	.96452	991.2	55	.90862	984.0	88	.82347	980.8
23	.96339	991 1	56	.90646	983.9	89	.82031	980.8
24	.96226	991.0	57	.90434	983.8	90	.81699	980.7
25	.96113	990.9	58	.99213	983.7	91	.81359	980.6
26	.95982	990.6	59	.89986	983.6	92	.81018	980.5
27	.95849	990.3	60	.89757	983.5	93	.80677	980.4
28	.95716	990 0	61	.89522	983.3	94	.80302	980.4
29	.95577	989 7	62	.89287	983.2	95	.79915	980.2
30	.95438	989.5	63	.89062	983.1	96	.79514	980.2
31	.95298	989.2	64	.88833	983 1	97	.79101	980.0
32	.95145	988.9	65	.88599	983.0	98	.78676	980.9
33	.94993	988.6	66	.88353	982.9	99	.78238	980.8
						100	.77788	980.8

TABLE VIII—Continued.

Temperature 94°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99256	994.9	34	.94799	987.9	67	.88054	982.1
2	.99108	994.8	35	.94636	987.5	68	.87805	982.0
3	.98960	994.7	36	.94471	987.2	69	.87555	981.9
4	.98812	994.7	37	.94294	986 9	70	.87305	981.8
5	.98664	994.6	38	.94117	986.5	71	.87056	981.8
6	.98526	994.5	39	.93957	986.4	72	.86800	981.7
7	.98391	994.4	40	.93793	986.2	73	.86544	981 6
8	.98258	994.3	41	.93617	986.0	74	.86284	981.5
9	.98124	994.2	42	.93433	985.7	75	.86021	981.4
10	.97990	994.1	43	.93241	985.5	76	.85756	981.3
11	.97863	993.9	44	.93051	985.2	77	.85487	981.2
12	.97734	993.7	45	.92871	985.1	78	.85218	981.1
13	.97606	993.5	46	.92681	984.9	79	.84941	981.1
14	.97478	993.3	47	.92484	984.7	80	.84663	981.0
15	.97352	993.1	48	.92287	984.6	81	.84383	980.9
16	.97228	992.9	49	.92089	984.5	82	.84101	980.9
17	.97103	992.7	50	.91888	984.3	83	.83819	980.8
18	.96979	992.5	51	.91686	984.2	84	.83525	980.7
19	.96842	992.1	52	.91468	983.9	85	.83225	980.6
20	.96701	991.7	53	.91255	983.8	86	.82924	980.4
21	.96559	991 3	54	.91035	983.6	87	.82612	980.3
22	.96421	990.9	55	.90815	983.4	88	.82297	980.3
23	.96308	990.8	56	.90599	983.3	89	.81981	980.2
24	.96195	990.7	57	.90387	983.3	90	.81649	980.1
25	.96082	990.5	58	.90166	983.2	91	.81309	979.9
26	.95951	990.3	59	.89939	983.1	92	.80968	979.8
27	.95817	990.0	60	.89710	983.0	93	.80627	979.8
28	.95683	989.7	61	.89475	982.8	94	.80252	979.7
29	.95543	989.4	62	.89239	982.6	95	.79864	979.6
30	.95404	989.1	63	.89014	982.6	96	.79464	979.6
31	.95263	988.8	64	.88785	982.6	97	.79051	979.4
32	.95110	988.5	65	.88551	982.5	98	.78626	979.3
33	.94957	988.2	66	.88304	982.3	99	.78188	979.2
						100	.77738	980.2

TABLE VIII—Continued.

Temperature 95°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99235	994.7	34	.94762	987.5	67	.88006	981.6
2	.99087	994.6	35	.94598	987.2	68	.87756	981.5
3	.98938	994 5	36	.94432	986.8	69	.87506	981.3
4	.98790	994.4	37	.94255	986.5	70	.87256	981.3
5	.98642	994.4	38	.94077	986.1	71	.87007	981.2
6	.98504	994.3	39	.93917	985.9	72	.86751	981.1
7	.98369	994.2	40	.93758	985.8	73	.86495	981.0
8	.98235	994.1	41	.93576	985.6	74	.86235	980.9
9	.98101	994.0	42	.93391	985.3	75	.85972	980.8
10	.97967	993.8	43	.93198	985.0	76	.85707	980.8
11	.97839	993.7	44	.93008	984.8	77	.85437	980.7
12	.97710	993.5	45	.92828	984.7	78	.85168	980.6
13	.97581	993.3	46	.92637	984.5	79	.84891	980.5
14	.97453	993.1	47	.92440	984.3	80	.84613	980.4
15	.97327	992.9	48	.92243	984.1	81	.84334	980.3
16	.97202	992.6	49	.92044	984.0	82	.84052	980.3
17	.97077	992.4	50	.91843	983.8	83	.83770	980.3
18	.96952	992.2	51	.91641	983.7	84	.83476	980.1
19	.96814	991.8	52	.91422	983.5	85	.83175	980.0
20	.96672	991.4	53	.91209	983.3	86	.82874	979.8
21	.96529	991.0	54	.90989	983.1	87	.82562	979.7
22	.96390	990.6	55	.90768	982.9	88	.82247	979.7
23	.96277	990.5	56	.90552	982.8	89	.81931	979.6
24	.96164	990.3	57	.90340	982.8	90	.81599	979.5
25	.96051	990.2	58	.90119	982.7	91	.81259	979.4
26	.95919	989.9	59	.89892	982.6	92	.80918	979.3
27	.95785	989.7	60	.89663	982.5	93	.80576	979.2
28	.95650	989.3	61	.89427	982.3	94	.80201	979.1
29	.95510	989.0	62	.89191	982.1	95	.79813	979.0
30	.95370	988.8	63	.88966	982.1	96	.79414	979.0
31	.95229	988.5	64	.88737	982.0	97	.79001	978.8
32	.95075	988.2	65	.88503	982.0	98	.78576	978.7
33	.94921	987.8	66	.88256	981.8	99	.78138	978.6
						100	.77688	978.6

TABLE VIII—Continued.

Temperature 96°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99212	994.4	34	.94724	987.1	67	.87957	981.1
2	.99064	994.4	35	.94560	986.8	68	.87706	980.9
3	.98915	994.3	36	.94393	986.4	69	.87456	980.7
4	.98766	994.2	37	.94215	986.0	70	.87206	980.7
5	.98618	994.1	38	.94036	985.6	71	.86957	980.7
6	.98480	994.0	39	.93876	985.5	72	.86702	980.6
7	.98345	993.9	40	.93717	985.4	73	.86446	980.5
8	.98210	993.8	41	.93534	985.1	74	.86185	980.4
9	.98076	993.7	42	.93349	984.9	75	.85922	980.3
10	.97942	993.6	43	.93155	984.6	76	.85657	980.2
11	.97813	993.4	44	.92964	984.3	77	.85387	980.1
12	.97684	993.2	45	.92784	984.2	78	.85118	980.0
13	.97555	993.0	46	.92593	984.0	79	.84841	979.9
14	.97426	992.8	47	.92396	983.8	80	.84563	979.8
15	.97300	992.6	48	.92198	983.6	81	.84284	979.7
16	.97174	992.4	49	.91999	983.5	82	.84002	979.7
17	.97049	992.1	50	.91798	983.3	83	.83721	979.7
18	.96924	991.9	51	.91595	983.2	84	.83427	979.6
19	.96785	991.5	52	.91376	983.0	85	.83125	979.4
20	.96641	991.1	53	.91163	982.8	86	.82824	979.2
21	.96497	990.6	54	.90942	982.6	87	.82512	979.1
22	.96357	990.2	55	.90720	982.4	88	.82197	979.1
23	.96245	990.1	56	.90505	982.3	89	.81881	979.0
24	.96132	990.0	57	.90293	982.3	90	.81549	978.9
25	.96019	989.9	58	.90072	982.2	91	.81209	978.8
26	.95886	989.6	59	.89844	982.0	92	.80868	978.7
27	.95751	989.3	60	.89615	981.9	93	.80526	978.5
28	.95616	989.0	61	.89379	981.8	94	.80151	978.5
29	.95476	988.7	62	.89142	981.6	95	.79763	978.4
30	.95335	988.4	63	.88918	981.5	96	.79363	978.3
31	.95193	988.1	64	.88689	981.5	97	.78951	978.2
32	.95039	987.8	65	.88455	981.4	98	.78526	978.1
33	.94884	987.4	66	.88207	981.2	99	.78088	978.0
						100	.77638	978.0

TABLE VIII—Continued.

Temperature 97°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99189	994.2	34	.94686	986.7	67	.87908	980.5
2	.99041	994.1	35	.94521	986.3	68	.87657	980.3
3	.98891	994.0	36	.94353	986.0	69	.87406	980.2
4	.98743	994.0	37	.94175	985.6	70	.87157	980.1
5	.98594	993.9	38	.93995	985.2	71	.86908	980.1
6	.98456	993.8	39	.93835	985.1	72	.86652	980.0
7	.98321	993.7	40	.93676	985.0	73	.86396	979.9
8	.98186	993.6	41	.93492	984.7	74	.86136	979.8
9	.98051	993.3	42	.93306	984.4	75	.85873	979.7
10	.97917	993.3	43	.93112	984.1	76	.85607	979.6
11	.97788	993.1	44	.92920	983.8	77	.85337	979.5
12	.97684	992.9	45	.92740	983.7	78	.85068	979.4
13	.97528	992.7	46	.92549	983.5	79	.84791	979.3
14	.97399	992.5	47	.92351	983.3	80	.84513	979.2
15	.97273	992.3	48	.92154	983.2	81	.84234	979.2
16	.97146	992.1	49	.91954	983.0	82	.83953	979.1
17	.97021	991.8	50	.91752	982.8	83	.83672	979.1
18	.96895	991.6	51	.91550	982.7	84	.83377	979.0
19	.96756	991.2	52	.91330	982.5	85	.83075	978.8
20	.96611	990.8	53	.91116	982.3	86	.82774	978.6
21	.96466	990.3	54	.90895	982.1	87	.82461	978.5
22	.96325	989.9	55	.90673	981.9	88	.82146	978.5
23	.96212	989.8	56	.90458	981.8	89	.81830	978.4
24	.96099	989.7	57	.90246	981.8	90	.81499	978.3
25	.95986	989.6	58	.90024	981.7	91	.81158	978.2
26	.95853	989.3	59	.89797	981.5	92	.80817	978.0
27	.95718	989.0	60	.89567	981.4	93	.80476	977.9
28	.95582	988.6	61	.89331	981.2	94	.80100	977.9
29	.95441	988.3	62	.89094	981.0	95	.79712	977.7
30	.95300	988.0	63	.88869	981.0	96	.79312	977.7
31	.95158	987.7	64	.88640	981.0	97	.78900	977.5
32	.95003	987.4	65	.88406	980.9	98	.78475	977.4
33	.94847	987.0	66	.88159	980.7	99	.78038	977.3
						100	.77588	977.3

TABLE VIII—Continued.

Temperature 98°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99167	994.0	34	.94649	986.3	67	.87859	980.0
2	.99017	993.9	35	.94483	986.0	68	.87607	979.8
3	.98868	993.8	36	.94314	985.6	69	.87356	979.6
4	.98719	993.7	37	.94134	985.2	70	.87107	979.6
5	.98571	993.7	38	.93954	984.8	71	.86858	979.5
6	.98431	993.5	39	.93794	984.7	72	.86603	979.4
7	.98296	993.4	40	.93634	984.5	73	.86347	979.3
8	.98161	993.3	41	.93451	984.3	74	.86086	979.2
9	.98027	993.2	42	.93264	984.0	75	.85823	979.1
10	.97892	993.1	43	.93068	983.6	76	.85558	979.1
11	.97762	992.9	44	.92877	983.4	77	.85287	978.9
12	.97632	992.7	45	.92697	983.3	78	.85018	978.8
13	.97502	992.5	46	.92504	983.1	79	.84741	978.8
14	.97373	992.3	47	.92307	982.8	80	.84463	978.6
15	.97245	992.0	48	.92109	982.7	81	.84185	978.6
16	.97119	991.8	49	.91909	982.5	82	.83903	978.5
17	.96993	991.5	50	.91707	982.4	83	.83622	978.5
18	.96867	991.3	51	.91504	982.2	84	.83328	978.4
19	.96726	990.9	52	.91284	982.0	85	.83026	978.2
20	.96580	990.4	53	.91070	981.8	86	.82723	978.0
21	.96434	990.0	54	.90849	981.6	87	.82411	977.9
22	.96292	989.6	55	.90626	981.4	88	.82096	977.9
23	.96180	989.5	56	.90410	981.3	89	.81780	977.8
24	.96067	989.3	57	.90198	981.3	90	.81448	977.7
25	.95954	989.2	58	.89977	981.2	91	.81108	977.5
26	.95821	988.9	59	.89749	981.0	92	.80767	977.4
27	.95684	988.6	60	.89519	980.9	93	.80425	977.3
28	.95547	988.3	61	.89282	980.7	94	.80049	977.3
29	.95407	988.0	62	.89045	980.5	95	.79661	977.1
30	.95265	987.7	63	.88821	980.5	96	.79261	977.0
31	.95122	987.4	64	.88592	980.4	97	.78849	976.9
32	.94966	987.0	65	.88358	980.3	98	.78424	976.8
33	.94810	986.7	66	.88110	980.2	99	.77988	976.7
						100	.77537	976.7

TABLE VIII—Continued.

Temperature 99°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99144	993.7	34	.94611	985.9	67	.87810	979.4
2	.98994	993.7	35	.94444	985.6	68	.87558	979.2
3	.98844	993.6	36	.94275	985.2	69	.87306	979.1
4	.98696	993.5	37	.94094	984.8	70	.87058	979.0
5	.98547	993.4	38	.93913	984.4	71	.86809	979.0
6	.98407	993.3	39	.93753	984.2	72	.86553	978.9
7	.98272	993.2	40	.93593	984.1	73	.86297	978.8
8	.98137	993.1	41	.93409	983.8	74	.86037	978.7
9	.98002	992.9	42	.93221	983.5	75	.85774	978.6
10	.97867	992.8	43	.93025	983.2	76	.85508	978.5
11	.97737	992.6	44	.92833	982.9	77	.85237	978.4
12	.97606	992.4	45	.92653	982.8	78	.84968	978.3
13	.97475	992.2	46	.92460	982.6	79	.84691	978.2
14	.97346	992.0	47	.92262	982.4	80	.84413	978.1
15	.97218	991.8	48	.92065	982.2	81	.84135	978.0
16	.97091	991.5	49	.91864	982.1	82	.83854	978.0
17	.96965	991.3	50	.91661	981.9	83	.83573	977.9
18	.96838	991.0	51	.91459	981.7	84	.83278	977.8
19	.96697	990.6	52	.91238	981.5	85	.82976	977.6
20	.96550	990.1	53	.91023	981.3	86	.82673	977.5
21	.96403	989.7	54	.90802	981.1	87	.82360	977.3
22	.96260	989.2	55	.90578	980.9	88	.82045	977.3
23	.96147	989.1	56	.90363	980.8	89	.81729	977.2
24	.96034	989.0	57	.90151	980.7	90	.81398	977.1
25	.95921	988.9	58	.89929	980.6	91	.81057	976.9
26	.95788	988.6	59	.89702	980.5	92	.80716	976.8
27	.95651	988.3	60	.89471	980.4	93	.80374	976.7
28	.95513	987.9	61	.89234	980.2	94	.79998	976.7
29	.95372	987.6	62	.88997	980.0	95	.79610	976.4
30	.95230	987.3	63	.88772	979.9	96	.79210	976.4
31	.95087	987.0	64	.88543	979.9	97	.78798	976.2
32	.94930	986.6	65	.88309	979.8	98	.78373	976.1
33	.94773	986.3	66	.88062	979.6	99	.77937	976.0
						100	.77486	976.0

TABLE VIII—Continued.

Temperature 100°.

Per cent.	Density.	Volume.	Per cent.	Density.	Volume.	Per cent.	Density.	Volume.
1	.99121	993.5	34	.94573	985.5	67	.87761	978.9
2	.98971	993.4	35	.94406	985.2	68	.87508	978.7
3	.98821	993.3	36	.94236	984.8	69	.87256	978.5
4	.98672	993.3	37	.94054	984.4	70	.87008	978.5
5	.98523	993.2	38	.93872	983.9	71	.86759	978.4
6	.98383	993.1	39	.93712	983.8	72	.86504	978.3
7	.98248	992.9	40	.93552	983.7	73	.86248	978.2
8	.98112	992.9	41	.93367	983.4	74	.85987	978.1
9	.97977	992.7	42	.93179	983.1	75	.85724	978.0
10	.97842	992.6	43	.92982	982.7	76	.85458	977.9
11	.97711	992.4	44	.92789	982.5	77	.85187	977.8
12	.97580	992.1	45	.92609	982.3	78	.84918	977.7
13	.97449	991.9	46	.92416	982.1	79	.84641	977.6
14	.97319	991.7	47	.92218	981.9	80	.84363	977.5
15	.97191	991.5	48	.92020	981.8	81	.84085	977.4
16	.97063	991.2	49	.91819	981.6	82	.83804	977.4
17	.96937	991.0	50	.91616	981.4	83	.83524	977.4
18	.96810	990.7	51	.91413	981.2	84	.83229	977.2
19	.96668	990.3	52	.91192	981.0	85	.82926	977.1
20	.96519	989.8	53	.90977	980.8	86	.82623	976.9
21	.96371	989.3	54	.90755	980.6	87	.82310	976.7
22	.96227	988.9	55	.90531	980.4	88	.81995	976.7
23	.96115	988.8	56	.90316	980.3	89	.81679	976.6
24	.96002	988.7	57	.90104	980.2	90	.81348	976.5
25	.95889	988.6	58	.89882	980.1	91	.81007	976.3
26	.95755	988.2	59	.89654	980.0	92	.80666	976.2
27	.95617	987.9	60	.89423	979.8	93	.80323	976.1
28	.95479	987.6	61	.89186	979.6	94	.79947	976.0
29	.95338	987.3	62	.88948	979.4	95	.79559	975.8
30	.95195	987.0	63	.88724	979.4	96	.79159	975.7
31	.95051	986.6	64	.88495	979.4	97	.78747	975.6
32	.94894	986.3	65	.88261	979.3	98	.78322	975.5
33	.94736	985.9	66	.88013	979.1	99	.77886	975.4
						100	.77435	975.4

TABLE IX,

Used with the formula D, for interpolating between 93 *and* 100 *per cent.*

Temp.	87 per cent.	93 per cent.	99 per cent.	Temp.	87 per cent.	93 per cent.	99 per cent.
20°	0.86107	0.84137	0.81678	65°	0.84032	0.82052	0.79608
25	.85883	.83913	.81456	70	.83792	.81811	.79368
30	.85660	.83687	.81232	75	.83550	.81568	.79126
35	.85432	.83459	.81006	80	.83306	.81323	.78882
40	.85203	.83229	.80778	85	.83060	.81076	.78636
45	.84973	.82997	.80548	90	.82812	.80827	.78388
50	.84742	.82763	.80316	95	.82562	.80576	.78138
55	.84507	.82528	.80082	100	.82310	.80323	.77886
60	.84271	.82291	.79846				

TABLE X,

Showing the computed densities of alcohol of strengths between 93 *and* 100 *per cent. inclusive.*

Temp.	93 per cent.	94 per cent.	95 per cent.	96 per cent.	97 per cent.	98 per ct.	99 per ct.	100 pr. ct.
20°	0.84137	0.83762	0.83373	0.82970	0.82553	0.82123	0 81678	0.81222
25	.83913	.83538	.83149	.82745	.82329	.81902	.81456	.81000
30	.83687	.83312	.82922	.82520	.82103	.81674	.81232	.80776
35	.83459	.83083	.82695	.82292	.81876	.81448	.81006	.80550
40	.83229	.82853	.82464	.82063	.81648	.81220	.80778	.80323
45	.82997	.82623	.82233	.81832	.81417	.80990	.80548	.80094
50	.82763	.82388	.81999	.81598	.81184	.80756	.80316	.79863
55	.82528	.82154	.81766	.81365	.80951	.80524	.80082	.79630
60	.82291	.81915	.81526	.81126	.80713	.80284	.79846	.79390
65	.82052	.81677	.81289	.80888	.80475	.80048	.79608	.79156
70	.81811	.81436	.81049	.80648	.80234	.79808	.79368	.78917
75	.81568	.81193	.80805	.80406	.79992	.79565	.79126	.78675
80	.81323	.80949	.80561	.80161	.79748	.79320	.78882	.78432
85	.81076	.80700	.80313	.79913	.79499	.79074	.78636	.78185
90	.80827	.80452	.80065	.79664	.79251	.78826	.78388	.77937
95	.80576	.80201	.79813	.79414	.79001	.78576	.78138	.77688
100	.80323	.79947	.79559	.79159	.78747	.78322	.77886	.77435

TABLE XI.

Comparison of Muncké's densities of 100 *per cent. alcohol with those given in table VIII.*

Temperature, Fahrenheit.	Density of table VIII.	Density of Muncké.	Difference.	Temperature, Fahrenheit.	Density of table VIII.	Density of Muncké.	Difference.
20°	.81222	.81234	—.00012	40°	.80323	.80330	—.00007
21	.81178	.81190	—.00012	41	.80278	.80284	—.00006
22	.81134	.81146	—.00012	42	.80232	.80237	—.00005
23	.81090	.81102	—.00012	43	.80186	.80191	—.00005
24	.81045	.81057	—.00012	44	.80140	.80144	—.00004
25	.81000	.81012	—.00012	45	.80094	.80097	—.00003
26	.80956	.80967	—.00011	46	.80048	.80051	—.00003
27	.80911	.80922	—.00011	47	.80002	.80004	—.00002
28	.80866	.80877	—.00011	48	.79956	.79957	—.00001
29	.80821	.80832	—.00011	49	.79910	.79911	—.00001
30	.80776	.80787	—.00011	50	.79863	.79864	—.00001
31	.80731	.80742	—.00011	51	.79817	.79813	+.00004
32	.80686	.80697	—.00011	52	.79771	.79769	+.00002
33	.80641	.80651	—.00010	53	.79724	.79722	+.00002
34	.80596	.80605	—.00009	54	.79677	.79675	+.00002
35	.80550	.80559	—.00009	55	.79630	.79627	+.00003
36	.80505	.80513	—.00008	56	.79582	.79580	+.00003
37	.80460	.80467	—.00007	57	.79534	.79533	+.00001
38	.80415	.80422	—.00007	58	.79486	.79485	+.00001
39	.80369	.80376	—.00007	59	.79438	.79438	.00000

TABLE XI—Continued.

Temperature, Fahrenheit.	Density of table VIII.	Density of Munckė.	Difference.	Temperature, Fahrenheit.	Density of table VIII.	Density of Munckė.	Difference.
60°	.79390	.79390	.00000	80°	.78432	.78432	.00000
61	.79344	.79343	+.00001	81	.78383	.78384	—.00001
62	.79297	.79295	+.00002	82	.78334	.78336	—.00002
63	.79250	.79247	+.00003	83	.78285	.78288	—.00003
64	.79203	.79200	+.00003	84	.78235	.78239	—.00004
65	.79156	.79152	+.00004	85	.78185	.78191	—.00006
66	.79109	.79104	+.00005	86	.78136	.78141	—.00005
67	.79061	.79057	+.00004	87	.78087	.78095	—.00008
68	.79013	.79009	+.00004	88	.78037	.78047	—.00010
69	.78965	.78961	+.00004	89	.77987	.77998	—.00011
70	.78917	.78913	+.00004	90	.77937	.77950	—.00013
71	.78869	.78865	+.00004	91	.77888	.77902	—.00014
72	.78821	.78817	+.00004	92	.77838	.77854	—.00016
73	.78773	.78769	+.00004	93	.77788	.77805	—.00017
74	.78724	.78721	+.00003	94	.77738	.77757	—.00019
75	.78675	.78673	+.00002	95	.77688	.77709	—.00021
76	.78627	.78625	+.00002	96	.77638	.77661	—.00023
77	.78579	.78577	+.00002	97	.77588	.77613	—.00025
78	.78530	.78529	+.00001	98	.77537	.77565	—.00028
79	.78481	.78481	.00000	99	.77486	.77517	—.00031
				100	.77435	.77468	—.00033

TABLE XII.

M. Gay Lussac's densities of 100 *per cent. alcohol compared with those of table VIII.*

Temperature.	Densities of table VIII.	Densities of Gay Lussac.	Difference.
40°	0.80323	0.80276	+0.00047
42	.80232	.80188	+ .00044
43	.80186	.80142	+ .00044
46	.80048	.80001	+ .00047
55	.79630	.79592	+ .00038
59	.79438	.79417	+ .00021
60	.79390	.79390	.00000
63	.79250	.79240	+ .00010
64	.79203	.79192	+ .00011
71	.78869	.78870	+ .00001
80	.78432	.78448	— .00016
87	.78087	.78117	— .00030
100	.77435	.77513	— .00078

TABLE XIII.

Tralles.—Alcohol of 99 *per cent.*

Temperature.	Densities of table VIII.	Densities of Tralles.	Difference.
57°	0.79988	0.79988	0.00000
60	.79846	.79846	.00000
61	.79799	.79810	— .00011
66	.79560	.79570	— .00010
68	.79464	.79467	— .00003
69	.79416	.79430	— .00014
99	.77937	.78048	— .00111

TABLE XIV.

Delezennes.—Alcohol of 99 *per cent.*

Temperature.	Densities of table VIII.	Densities of Delezennes.	Difference.
30° —	0.81232	0.81384	—0.00152
32 —	.81142	.81294	— .00152
35 —	.81006	.81158	— .00152
60 +	.79846	.79852	— .00006
64 +	.79656	.79662	— .00006
65 +	.79608	.79614	— .00006
95 —	.78138	.78208	— .00070
97 —	.78038	.78107	— .00069

TABLE XV.

Delezennes.—Alcohol of 96 per cent.

Temperature.	Densities of table VIII.	Densities of Delezennes.	Difference.
30° —	0.82520	0.82553	—0.00033
32 00. —	.82430	.82463	— .00033
35 00. —	.82292	.82328	— .00036
60 00. —	.81126	.81124	+ .00002
64 00. —	.80936	.80934	+ .00002
65 00. —	.80888	.80887	+ .00001
95 00. —	.79414	.79418	— .00004
97 00. —	.79312	.79317	— .00005

TABLE XVI.

Delezennes.—Alcohol of 95 per cent.

Temperature	Densities of table VIII.	Densities of Delezennes.	Difference.
30°	0.82922	0.82955	—0.00033
32	.82832	.82865	— .00033
35	.82695	.82730	— .00035
60	.81528	.81526	+ .00002
64	.81338	.81336	+ .00002
65	.81290	.81289	+ .00001
95	.79813	.79820	— .00007
97	.79712	.79719	— .00007

TABLE XVII.

Delezennes.—Alcohol of 93 per cent.

Temperature.	Densities of table VIII.	Densities of Delezennes.	Difference.
30°	0.83687	0.83702	—0.00015
32	.83597	.83611	— .00014
35	.83459	.83475	— .00016
60	.82291	.82290	+ .00001
64	.82100	.82101	— .00001
65	.82052	.82053	— .00001
95	.80576	.80585	— .00009
97	.80476	.80484	— .00008

TABLE XVIII.

McCulloh.—Alcohol of 100 *per cent.*

Temperature.	Densities of table VIII.	Densities of McCulloh.	Difference.
55° —	0.79630	0.79561	+0.00069
57 +	.79534	.79554	— .00024
58 +	.79486	.79493	— .00007
59 +	.79438	.79439	— .00001
60	.79390	.79390	.00000
62	.79297	.79296	+ .00001
63	.79250	.79248	+ .00002
64 —	.79203	.79194	+ .00009
65 +	.79156	.79191	— .00035
70 —	.78917	.78909	+ .00008
72 +	.78821	.78837	— .00016
80 +	.78432	.78465	— .00033
81 +	.78383	.78406	— .00023

TABLE XIX.

McCulloh.—Alcohol of 99 per cent.

Temperature.	Densities of table VIII.	Densities of McCulloh.	Difference.
55° +	0.80017	0.80082	—0.00065
57 —	.80010	.79988	+ .00012
58 —	.79949	.79941	+ .00008
59 —	.79895	.79894	+ .00001
60	.79846	.79846	.00000
62 +	.79752	.79752	.00000
63 +	.79704	.79704	.00000
64 +	.79650	.79656	— .00006
65 —	.79625	.79608	+ .00015
70 +	.79365	.79368	— .00003
72 —	.79293	.79272	+ .00021
80 —	.78921	.78882	+ .00039
81 —	.78862	.78833	+ .00029

TABLE XX.

McCulloh.—Alcohol of 95 *per cent.*

Temperature.	Densities of table VIII.	Densities of McCulloh.	Difference.
36°	0.82649	0.82567	+0.00082
39	.82511	.82466	+ .00045
40	.82464	.82429	+ .00035
43	.82326	.82278	+ .00048
44	.82280	.82243	+ .00037
45	.82233	.82199	+ .00034
55	.81766	.81725	+ .00041
64	.81337	.81347	— .00010
70	.81049	.80983	+ .00066

TABLE XXI.

McCulloh.—Alcohol of 93 *per cent.*

Temperature.	Densities of table VIII.	Densities of McCulloh.	Difference.
59°	0.82339	0.82424	—0.00085
60	.82291	.82376	— .00085
64	.82100	.82094	+ .00006
65	.82052	.82073	— .00021
80	.81323	.81316	+ .00007

TABLE XXII,

Showing differences between interpolated and observed densities.

Observer.	Per cent. of alcohol.	Greatest difference of specific gravity.	Greatest difference of per cent.	Mean difference of specific gravity.	Mean difference of per cent.
Munckē.....	100	—0.00033	—.07	—0.00005	—.01
Gay Lussac.....	100	— .00078	—.17	+ .00022	+.05
Tralles.....	99	— .00111	—.24	— .00021	—.05
Delezennes.....	99	— .00152	—.33	— .00077	—.17
Do.....	96	— .00036	—.09	— .00014	—.03
Do.....	95	— .00035	—.09	— .00014	—.03
Do.....	93	— .00016	—.05	— .00008	—.02
McCulloh.....	100	+ .00069	+.15	+ .00007	+.02
Do.....	99	— .00065	—.14	— .00004	—.01
Do.....	95	+ .00082	+.20	+ .00042	+.10
Do.....	93	— .00085	—.25	— .00036	—.10

TABLE XXIII.

Coefficient for correction of density, for expansion and contraction of instrument, for every temperature above and below 60° *Fahrenheit.*

Temp.	*k t.*	Log. of *k t.*	Temp.	*k t.*	Log. of *k t.*
1°	.0000129	$\overline{5}$.1105897	21°	.0002709	$\overline{4}$.4328090
2	.0000258	.4116197	22	.0002838	.4530124
3	.0000387	.5877110	23	.0002967	.4723175
4	.0000516	.7126497	24	.0003096	.4908010
5	.0000645	.8095597	25	.0003225	.5085297
6	.0000774	.8887410	26	.0003354	.5255631
7	.0000903	.9556878	27	.0003483	.5419535
8	.0001032	$\overline{4}$.0136797	28	.0003612	.5577477
9	.0001161	.0648322	29	.0003741	.5729877
10	.0001290	.1105897	30	.0003870	.5877110
11	.0001419	.1519824	31	.0003999	.6019514
12	.0001548	.1897710	32	.0004128	.6157397
13	.0001677	.2245331	33	.0004257	.6291087
14	.0001806	.2567177	34	.0004386	.6420686
15	.0001935	.2866810	35	.0004515	.6546578
16	.0002064	.3147097	36	.0004644	.6668922
17	.0002193	.3410386	37	.0004773	.6787914
18	.0002322	.3658622	38	.0004902	.6903733
19	.0002451	.3893433	39	.0005031	.7016543
20	.0002580	.4116197	40	.0005160	.7126497

TABLE XXIV,

Showing the apparent densities and apparent per cents., corresponding to every true per cent. from 1 *to* 100 *inclusive, and for every fifth degree of temperature from* 20° *to* 100° *inclusive.*

Temperature 20°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99717	1.36	34	.97028	24.73	67	.91354	59.60
2	.99585	2.29	35	.96934	25.62	68	.91109	60.69
3	.99452	3.23	36	.96840	26.50	69	.90862	61.79
4	.99319	4.16	37	.96748	27.36	70	.90623	62.85
5	.99186	5.11	38	.96657	28.20	71	.90385	63.89
6	.99072	5.99	39	.96527	29.36	72	.90137	64.97
7	.98963	6.87	40	.96396	30.50	73	.89890	66.02
8	.98856	7.73	41	.96262	31.62	74	.89636	67.09
9	.98748	8.60	42	.96127	32.72	75	.89380	68.15
10	.98640	9.47	43	.95982	33.85	76	.89122	69.21
11	.98554	10.18	44	.95838	34.93	77	.88863	70.24
12	.98471	10.93	45	.95692	36.01	78	.88603	71.28
13	.98387	11.69	46	.95538	37.08	79	.88337	72.33
14	.98303	12.45	47	.95379	38.18	80	.88071	73.38
15	.98231	13.10	48	.95208	39.32	81	.87803	74.42
16	.98165	13.70	49	.95036	40.44	82	.87530	75.46
17	.98100	14.30	50	.94862	41.52	83	.87257	76.50
18	.98034	14.92	51	.94684	42.60	84	.86968	77.58
19	.97979	15.46	52	.94506	43.65	85	.86668	78.68
20	.97927	15.96	53	.94322	44.72	86	.86369	79.78
21	.97876	16.45	54	.94124	45.85	87	.86063	80.87
22	.97824	16.95	55	.93920	46.99	88	.85752	81.97
23	.97763	17.54	56	.93721	48.05	89	.85441	83.06
24	.97701	18.15	57	.93521	49.12	90	.85113	84.22
25	.97640	18.75	58	.93317	50.19	91	.84773	85.34
26	.97581	19.32	59	.93108	51.26	92	.84434	86.47
27	.97522	19.90	60	.92890	52.34	93	.84094	87.56
28	.97463	20.48	61	.92677	53.39	94	.83723	88.74
29	.97401	21.09	62	.92464	54.42	95	.83342	89.90
30	.97339	21.70	63	.92242	55.49	96	.82948	91.07
31	.97275	22.32	64	.92021	56.53	97	.82542	92.26
32	.97195	23.10	65	.91798	57.57	98	.82125	93.44
33	.97116	23.87	66	.91575	58.60	99	.81696	94.57
						100	.81254	95.68

TABLE XXIV—Continued.

Temperature 25°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99764	1.03	34	.96910	25.85	67	.91150	60.51
2	.99629	1.98	35	.96810	26.79	68	.90907	61.59
3	.99493	2.94	36	.96710	27.72	69	.90661	62.68
4	.99358	3.89	37	.96612	28.60	70	.90420	63.74
5	.99223	4.84	38	.96513	29.48	71	.90179	64.79
6	.99106	5.73	39	.96381	30.63	72	.89931	65.84
7	.98995	6.61	40	.96247	31.74	73	.89683	66.89
8	.98886	7.49	41	.96110	32.85	74	.89429	67.94
9	.98775	8.38	42	.95972	33.93	75	.89172	69.01
10	.98665	9.27	43	.95824	35.04	76	.88914	70.04
11	.98576	9.99	44	.95676	36.12	77	.88653	71.08
12	.98489	10.77	45	.95525	37.17	78	.88393	72.11
13	.98402	11.55	46	.95369	38.25	79	.88126	73.16
14	.98315	12.34	47	.95207	39.33	80	.87857	74.21
15	.98237	13.05	48	.95034	40.45	81	.87587	75.24
16	.98167	13.68	49	.94859	41.54	82	.87312	76.29
17	.98096	14.34	50	.94682	42.61	83	.87038	77.32
18	.98025	15.01	51	.94503	43.67	84	.86749	78.39
19	.97963	15.61	52	.94321	44.73	85	.86450	79.48
20	.97905	16.17	53	.94136	45.78	86	.86152	80.55
21	.97846	16.74	54	.93938	46.89	87	.85844	81.64
22	.97787	17.31	55	.93733	47.99	88	.85533	82.74
23	.97719	17.97	56	.93533	49.05	89	.85223	83.81
24	.97651	18.64	57	.93330	50.12	90	.84894	84.93
25	.97582	19.31	58	.93124	51.18	91	.84555	86.08
26	.97517	19.95	59	.92914	52.22	92	.84216	87.17
27	.97451	20.60	60	.92696	53.29	93	.83875	88.25
28	.97385	21.25	61	.92481	54.34	94	.83504	89.41
29	.97316	21.92	62	.92266	55.37	95	.83122	90.55
30	.97246	22.60	63	.92045	56.42	96	.82726	91.72
31	.97175	23.30	64	.91822	57.46	97	.82318	92.92
32	.97089	24.14	65	.91598	58.49	98	.81897	94.05
33	.97003	24.97	66	.91374	59.51	99	.81464	95.16
						100	.81020	96.26

TABLE XXIV—Continued.

Temperature 30°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99806	0.73	34	.96788	26.99	67	.90944	61.43
2	.99667	1.71	35	.96683	27.97	68	.90702	62.50
3	.99528	2.69	36	.96578	28.91	69	.90457	63.57
4	.99390	3.66	37	.96472	29.84	70	.90214	64.63
5	.99251	4.64	38	.96366	30.77	71	.89972	65.67
6	.99131	5.54	39	.96231	31.87	72	.89723	66.72
7	.99018	6.43	40	.96095	32.98	73	.89473	67.76
8	.98906	7.33	41	.95954	34.07	74	.89218	68.82
9	.98794	8.23	42	.95811	35.13	75	.88962	69.84
10	.98681	9.14	43	.95662	36.22	76	.88704	70.88
11	.98589	9.89	44	.95510	37.27	77	.88442	71.91
12	.98498	10.69	45	.95356	38.33	78	.88180	72.95
13	.98407	11.51	46	.95196	39.40	79	.87912	74.00
14	.98316	12.33	47	.95032	40.46	80	.87642	75.03
15	.98234	13.07	48	.94857	41.55	81	.87369	76.07
16	.98158	13.76	49	.94679	42.63	82	.87093	77.11
17	.98081	14.48	50	.94500	43.69	83	.86816	78.14
18	.98005	15.20	51	.94320	44.73	84	.86528	79.19
19	.97937	15.86	52	.94136	45.78	85	.86231	80.27
20	.97873	16.48	53	.93947	46.84	86	.85934	81.33
21	.97808	17.11	54	.93748	47.91	87	.85627	82.41
22	.97742	17.75	55	.93544	48.99	88	.85314	83.50
23	.97668	18.47	56	.93342	50.07	89	.85001	84.57
24	.97593	19 21	57	.93137	51.12	90	.84673	85.68
25	.97519	19.93	58	.92929	52.15	91	.84334	86.80
26	.97446	20.65	59	.92718	53.19	92	.83995	87.87
27	.97374	21.35	60	.92499	54.25	93	.83655	88.95
28	.97301	22.07	61	.92284	55.29	94	.83282	90.08
29	.97225	22.81	62	.92068	56.31	95	.82897	91.22
30	.97148	23.56	63	.91844	57.36	96	.82500	92.39
31	.97069	24.33	64	.91621	58.39	97	.82090	93.54
32	.96977	25.22	65	.91396	59.41	98	.81667	94.64
33	.96886	26.08	66	.91170	60.42	99	.81234	95.73
						100	.80786	96.82

TABLE XXIV—Continued.

Temperature 35°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99827	0.58	34	.96661	28.17	67	.90736	62.35
2	.99687	1.57	35	.96552	29.14	68	.90494	63.42
3	.99547	2.55	36	.96442	30.10	69	.90250	64.48
4	.99407	3.54	37	.96329	31.09	70	.90005	65.53
5	.99268	4.52	38	.96216	31.99	71	.89761	66.56
6	.99146	5.42	39	.96077	33.12	72	.89512	67.60
7	.99031	6.32	40	.95938	34.19	73	.89262	68.63
8	.98917	7.24	41	.95793	35.26	74	.89006	69.67
9	.98802	8.16	42	.95648	36.31	75	.88748	70.70
10	.98688	9.09	43	.95496	37.37	76	.88489	71.73
11	.98591	9.87	44	.95341	38.43	77	.88228	72.76
12	.98497	10.69	45	.95183	39.49	78	.87965	73.79
13	.98403	11.55	46	.95020	40.54	79	.87696	74.83
14	.98308	12.41	47	.94853	41.57	80	.87425	75.86
15	.98222	13.18	48	.94676	42.64	81	.87151	76.89
16	.98141	13.92	49	.94498	43.70	82	.86872	77.94
17	.98059	14.69	50	.94317	44.75	83	.86593	78.96
18	.97978	15.47	51	.94134	45.80	84	.86304	80.01
19	.97904	16.18	52	.93946	46.85	85	.86008	81.07
20	.97832	16.88	53	.93755	47.87	86	.85712	82.11
21	.97762	17.55	54	.93555	48.94	87	.85404	83.19
22	.97690	18.25	55	.93352	50.01	88	.85093	84.26
23	.97610	19.04	56	.93148	51.07	89	.84779	85.32
24	.97530	19.82	57	.92940	52.09	90	.84451	86.42
25	.97450	20.61	58	.92731	53.12	91	.84112	87.50
26	.97370	21.39	59	.92519	54.16	92	.83773	88.58
27	.97292	22.16	60	.92300	55.21	93	.83432	89.63
28	.97213	22.92	61	.92083	56.24	94	.83060	90.74
29	.97130	23.74	62	.91865	57.26	95	.82673	91.88
30	.97045	24.56	63	.91642	58.29	96	.82274	93.05
31	.96960	25.28	64	.91418	59.31	97	.81864	94.13
32	.96863	26.29	65	.91191	60.33	98	.81440	95.22
33	.96765	27.21	66	.90963	61.34	99	.81002	96.30
						100	.80553	97.37

TABLE XXIV—Continued.

Temperature 40°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparant specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99834	0.54	34	.96530	29.33	67	.90525	63.28
2	.99693	1.53	35	.96416	30.33	68	.90284	64.33
3	.99554	2.51	36	.96300	31.31	69	.90041	65.38
4	.99414	3.49	37	.96181	32.28	70	.89795	66.42
5	.99274	4.48	38	.96061	33.24	71	.89548	67.45
6	.99150	5.39	39	.95920	34.32	72	.89298	68.49
7	.99033	6.31	40	.95778	35.38	73	.89048	69.50
8	.98917	7.24	41	.95631	36.43	74	.88792	70.52
9	.98801	8.17	42	.95482	37.47	75	.88534	71.55
10	.98685	9.10	43	.95327	38.53	76	.88273	72.58
11	.98586	9.90	44	.95169	39.58	77	.88010	73.61
12	.98488	10.78	45	.95008	40.61	78	.87747	74.63
13	.98390	11.66	46	.94842	41.64	79	.87477	75.66
14	.98292	12.55	47	.94673	42.66	80	.87206	76.68
15	.98202	13.36	48	.94494	43.72	81	.86931	77.72
16	.98116	14.15	49	.94312	44.78	82	.86650	78.75
17	.98029	14.97	50	.94129	45.82	83	.86370	79.77
18	.97943	15.81	51	.93945	46.85	84	.86080	80.81
19	.97863	16.58	52	.93754	47.88	85	.85785	81.85
20	.97786	17.32	53	.93560	48.91	86	.85490	82.89
21	.97708	18.08	54	.93360	49.96	87	.85181	83.96
22	.97630	18.84	55	.93156	51.02	88	.84869	85.02
23	97544	19.69	56	.92951	52.04	89	.84555	86.08
24	.97458	20.53	57	.92742	53.07	90	.84226	87.14
25	.97372	21.37	58	.92531	54.10	91	.83887	88.22
26	.97287	22.20	59	.92318	55.12	92	.83548	89.28
27	.97203	23.02	60	.92099	56.16	93	.83208	90.30
28	.97118	23.85	61	.91880	57.19	94	.82834	91.40
29	.97028	24.73	62	.91660	58.21	95	.82446	92.54
30	.96937	25.59	63	.91436	59.23	96	.82046	93.65
31	.96844	26.47	64	.91210	60.24	97	.81634	94.73
32	.96742	27.42	65	.90984	61.25	98	.81208	95.80
33	.96639	28.37	66	.90755	62.27	99	.80771	96.86
						100	.80319	97.92

TABLE XXIV—Continued.

Temperature 45°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99833	0.54	34	.96394	30.52	67	.90310	64.22
2	.99693	1.53	35	.96275	31.52	68	.90070	65.25
3	.99552	2.52	36	.96154	32.50	69	.89829	66.27
4	.99411	3.51	37	.96028	33.50	70	.89581	67.31
5	.99271	4.50	38	.95902	34.45	71	.89333	68.34
6	.99146	5.42	39	.95759	35.52	72	.89082	69.37
7	.99027	6.35	40	.95616	36.53	73	.88832	70.36
8	.98908	7.31	41	.95465	37.59	74	.88576	71.38
9	.98789	8.27	42	.95313	38.62	75	.88317	72.41
10	.98671	9.22	43	.95155	39.67	76	.88057	73.43
11	.98568	10.05	44	.94994	40.70	77	.87792	74.46
12	.98468	10.96	45	.94829	41.72	78	.87528	75.47
13	.98367	11.87	46	.94661	42.73	79	.87256	76.50
14	.98266	12.78	47	.94489	43.75	80	.86983	77.52
15	.98171	13.65	48	.94308	44.80	81	.86707	78 54
16	.98080	14 49	49	.94125	45.85	82	.86425	79.57
17	.97989	15.36	50	.93940	46.88	83	.86143	80.58
18	.97898	16.24	51	.93753	47.88	84	.85854	81 61
19	.97813	17.06	52	.93560	48.91	85	.85559	82.64
20	.97729	17.87	53	.93363	49.95	86	.85265	83.67
21	.97645	18.70	54	.93162	50.99	87	.84957	84.72
22	.97561	19.52	55	.92957	52.01	88	.84644	85.78
23	.97471	20.40	56	.92751	53.02	89	.84329	86.81
24	.97380	21.29	57	.92540	54.06	90	.84000	87 86
25	.97289	22.19	58	.92328	55.08	91	.83661	88.93
26	.97198	23.07	59	.92113	56 10	92	.83322	89.96
27	.97108	23.95	60	.91894	57.13	93	.82981	90 97
28	.97017	24.83	61	.91674	58.14	94	.82607	92.07
29	.96921	25.75	62	.91453	59.15	95	.82219	93.19
30	.96823	26.66	63	.91228	60.16	96	.81818	94.25
31	.96725	27.58	64	.91002	61.17	97	.81405	95.31
32	.96617	28.56	65	.90773	62 19	98	.80979	96.36
33	.96508	29.53	66	.90542	63.21	99	.80539	97.41
						100	.80088	98.45

TABLE XXIV—Continued.

Temperature 50°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99821	0.63	34	.96256	31.67	67	.90095	65.15
2	.99680	1.62	35	.96131	32.68	68	.89854	66.17
3	.99539	2.61	36	.96006	33.67	69	.89613	67.18
4	.99398	3.60	37	.95873	34.67	70	.89364	68.21
5	99257	4.60	38	.95741	35.65	71	.89114	69.24
6	.99130	5.54	39	.95596	36.67	72	.88864	70.24
7	.99010	6.50	40	.95449	37.70	73	.88613	71.24
8	.98889	7.46	41	.95295	38.74	74	.88356	72.25
9	.98769	8.43	42	.95140	39.77	75	.88097	73.27
10	.98648	9.40	43	.94979	40.80	76	.87836	74.29
11	.98543	10 28	44	.94816	41.80	77	.87571	75.30
12	.98438	11.23	45	.94648	42.81	78	.87306	76.31
13	.98334	12.17	46	.94476	43.83	79	.87034	77.33
14	.98230	13.11	47	.94302	44.84	80	.86760	78.35
15	.98131	14.01	48	.94119	45.88	81	.86482	79.36
16	.98036	14.91	49	.93934	46.91	82	.86200	80.38
17	.97941	15.82	50	.93747	47.92	83	.85917	81.39
18	.97846	16.74	51	.93558	48.92	84	.85628	82.40
19	.97754	17.63	52	.93362	49.95	85	.85333	83.43
20	.97664	18.51	53	.93164	50.98	86	.85039	84.44
21	.97575	19.38	54	.92962	51.98	87	.84731	85.48
22	.97484	20.28	55	.92756	53.00	88	.84416	86.53
23	.97389	21.21	56	.92547	54.02	89	.84101	87.54
24	.97294	22.13	57	.92337	55.03	90	.83771	88.58
25	.97199	23.06	58	.92123	56.05	91	.83432	89.63
26	.97102	24.01	59	.91908	57.06	92	.83093	90.64
27	.97006	24.94	60	.91687	58.08	93	.82752	91.64
28	.96910	25 85	61	.91466	59 09	94	.82378	92.74
29	.96809	26.79	62	.91243	60.09	95	.81990	93.80
30	.96706	27.76	63	.91017	61.10	96	.81589	94.84
31	.96602	28.70	64	.90790	62.11	97	.81176	95.88
32	.96488	29.70	65	.90561	63.12	98	.80749	96.91
33	.96375	30.69	66	.90329	64.13	99	.80309	97.94
						100	.79857	98.97

TABLE XXIV—Continued.

Temperature 55°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99799	0.78	34	.96111	32.85	67	.89877	66.07
2	.99658	1.77	35	.95982	33.85	68	.89636	67.08
3	.99517	2.77	36	.95852	34.83	69	.89395	68.08
4	.99375	3.77	37	.95714	35.85	70	.89145	69.12
5	.99234	4.76	38	.95576	36.81	71	.88895	70.11
6	.99106	5.73	39	.95428	37.85	72	.88643	71.12
7	.98984	6.70	40	.95279	38.85	73	.88391	72.12
8	.98861	7.69	41	.95122	39.89	74	88134	73.13
9	.98739	8.67	42	.94964	40.89	75	.87874	74.14
10	.98616	9.67	43	.94799	41.91	76	.87612	75.15
11	.98507	10.60	44	.94633	42.90	77	.87347	76.15
12	.98401	11.56	45	.94462	43.91	78	.87081	77.15
13	.98293	12.54	46	.94288	44.92	79	.86808	78.17
14	.98186	13.51	47	.94111	45.93	80	.86533	79.17
15	.98084	14.45	48	.93926	46.96	81	.86255	80.18
16	.97985	15.40	49	.93740	47.95	82	.85973	81.19
17	.97885	16.36	50	.93551	48.96	83	.85689	82.19
18	.97786	17.32	51	.93361	49.96	84	.85400	83.20
19	.97689	18.26	52	.93162	50.99	85	.85105	84.22
20	.97593	19.21	53	.92962	51.99	86	.84811	85.21
21	.97497	20.15	54	.92758	52.99	87	.84502	86.25
22	.97401	21.09	55	.92552	54.00	88	.84187	87.26
23	.97302	22.06	56	.92342	55.01	89	.83872	88.26
24	.97203	23.02	57	.92130	56.02	90	.83542	89.30
25	.97103	24.00	58	.91915	57.03	91	.83203	90.31
26	.97002	24 98	59	.91698	58.03	92	.82864	91.31
27	.96900	25.94	60	.91477	59 04	93	.82523	92.32
28	.96799	26 89	61	.91254	60.04	94	.82149	93.38
29	.96691	27.90	62	.91030	61.04	95	.81761	94.40
30	.96582	28.88	63	.90804	62.05	96	.81360	95.42
31	.96472	29.84	64	.90577	63.05	97	.80946	96.44
32	.96354	30.87	65	.90347	64.06	98	.80518	97.46
33	.96235	31.84	66	.90112	65.08	99	.80077	98.47
						100	.79625	99.48

TABLE XXIV—Continued.

Temperature 60°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99768	1.00	34	.95963	34.00	67	.89656	67.00
2	.99626	2.00	35	.95829	35.00	68	.89415	68.00
3	.99484	3.00	36	.95693	36.00	69	.89174	69.00
4	.99342	4.00	37	.95549	37.00	70	.88923	70.00
5	.99200	5.00	38	.95406	38.00	71	.88673	71.00
6	.99071	6.00	39	.95256	39.00	72	.88420	72.00
7	.98947	7.00	40	.95106	40.00	73	.88168	73.00
8	.98822	8.00	41	.94946	41.00	74	.87911	74.00
9	.98698	9.00	42	.94784	42.00	75	.87651	75.00
10	.98574	10.00	43	.94616	43.00	76	.87388	76.00
11	.98463	11.00	44	.94447	44.00	77	.87122	77.00
12	.98353	12.00	45	.94274	45.00	78	.86855	78.00
13	.98242	13.00	46	.94098	46.00	79	.86581	79.00
14	.98132	14.00	47	.93918	47.00	80	.86306	80.00
15	.98026	15.00	48	.93731	48.00	81	.86027	81.00
16	.97923	16.00	49	.93543	49.00	82	.85743	82.00
17	.97819	17.00	50	.93353	50.00	83	.85458	83.00
18	.97716	18.00	51	.93161	51.00	84	.85168	84.00
19	.97614	19.00	52	.92959	52.00	85	.84874	85.00
20	.97512	20.00	53	.92756	53.00	86	.84580	86.00
21	.97410	21.00	54	.92552	54 00	87	.84271	87.00
22	.97308	22.00	55	.92344	55.00	88	.83955	88.00
23	.97205	23.00	56	.92134	56.00	89	.83640	89 00
24	.97103	24.00	57	.91921	57.00	90	.83310	90.00
25	.97000	25.00	58	.91705	58.00	91	.82971	91.00
26	.96894	26.00	59	.91487	59.00	92	.82632	92 00
27	.96787	27.00	60	.91264	60.00	93	.82291	93.00
28	.96680	28.00	61	.91040	61.00	94	.81916	94.00
29	.96568	29.00	62	.90815	62.00	95	.81528	95.00
30	.96454	30.00	63	.90589	63.00	96	.81126	96.00
31	.96339	31.00	64	.90360	64.00	97	.80713	97.00
32	.96215	32.00	65	.90130	65.00	98	.80285	98.00
33	.96092	33.00	66	.89894	66.00	99	.79846	99.00
						100	.79390	100.00

TABLE XXIV—Continued.

Temperature 65°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99727	1.29	34	.95810	35.14	67	.89433	67.93
2	.99584	2.30	35	.95672	36.15	68	.89191	68.93
3	.99441	3.30	36	.95531	37.13	69	.88950	69.89
4	.99299	4.30	37	.95382	38.16	70	.88699	70.90
5	.99156	5.34	38	.95233	39.15	71	.88448	71.89
6	.99026	6.36	39	.95081	40.16	72	.88195	72.89
7	.98899	7.38	40	.94929	41.10	73	.87942	73.88
8	.98774	8.39	41	.94766	42.11	74	.87685	74.87
9	.98648	9.40	42	.94600	43.10	75	.87424	75.86
10	.98522	10.47	43	.94430	44.10	76	.87161	76.85
11	.98408	11.50	44	.94258	45.09	77	.86894	77.85
12	.98296	12.51	45	.94083	46.08	78	.86628	78.83
13	.98182	13.55	46	.93904	47.07	79	.86352	79.83
14	.98069	14.59	47	.93722	48.05	80	.86075	80.83
15	.97959	15.65	48	.93533	49.05	81	.85796	81.81
16	.97852	16.68	49	.93343	50.05	82	.85512	82.81
17	.97745	17.72	50	.93141	51.05	83	.85226	83.80
18	.97638	18.76	51	.92958	52.00	84	.84936	84.79
19	.97530	19.82	52	.92754	53.01	85	.84641	85.79
20	.97422	20.88	53	.92649	54.01	86	.84347	86.75
21	.97315	21.93	54	.92343	55.00	87	.84037	87.74
22	.97207	22.98	55	.92134	56.00	88	.83722	88.74
23	.97101	24.02	56	.91923	56.99	89	.83406	89.71
24	.96996	25.04	57	.91709	57.98	90	.83076	90.69
25	.96890	26.04	58	.91492	58.98	91	.82737	91.69
26	.96779	27.07	59	.91273	59.96	92	.82398	92 69
27	.96668	28.11	60	.91050	60.96	93	.82057	93.62
28	.96556	29.11	61	.90824	61.96	94	.81683	94.60
29	.96439	30.13	62	.90597	62.96	95	.81295	95.58
30	.96320	31.15	63	.90371	63.95	96	.80893	96.56
31	.96200	32.12	64	.90142	64.95	97	.80480	97.54
32	.96072	33.16	65	.89911	65.93	98	.80053	98.53
33	.95944	34.14	66	.89673	66.93	99	.79614	69.51
						100	.79162	100.49

TABLE XXIV—Continued.

Temperature 70°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99677	1.64	34	.95653	36.28	67	.89208	68.86
2	.99533	2.65	35	.95511	37.27	68	.88965	69.83
3	.99390	3.66	36	.95366	38.27	69	.88722	70.80
4	.99247	4.67	37	.95211	39.30	70	.88471	71.80
5	.99104	5.74	38	.95056	40.31	71	.88220	72.79
6	.98972	6.80	39	.94903	41.27	72	.87966	73.79
7	.98844	7.82	40	.94749	42.21	73	.87713	74.76
8	.98717	8.85	41	.94583	43.20	74	.87455	75.75
9	.98589	9 89	42	.94415	44.19	75	.87194	76.73
10	.98461	11.02	43	.94240	45.19	76	.86931	77.72
11	.98345	12.07	44	.94065	46.18	77	.86663	78 70
12	.98229	13.12	45	.93889	47.16	78	.86396	79.67
13	.98113	14.18	46	.93708	48.12	79	.86120	80.67
14	.97997	15.28	47	.93523	49.11	80	.85843	81.65
15	.97885	16.37	48	.93333	50.10	81	.85564	82.63
16	.97774	17.44	49	.93141	51.10	82	.85280	83.61
17	.97664	18.51	50	.92947	52 06	83	.84994	84.59
18	.97553	19.60	51	.92752	53.02	84	.84703	85.58
19	.97440	20.71	52	.92545	54.03	85	.84408	86.56
20	.97326	21.82	53	.92340	55.02	86	.84113	87.50
21	.97212	22.93	54	.92131	56.01	87	.83803	88.48
22	.97099	24.04	55	.91921	57.00	88	.83488	89.46
23	.96991	25.09	56	.91709	57 98	89	.83172	90.41
24	.96883	26.10	57	.91494	58.97	90	.82841	91.38
25	.96774	27.12	58	.91276	59 95	91	.82502	92 38
26	.96659	28.19	59	.91056	60.93	92	.82163	93.34
27	.96543	29.22	60	.90832	61.92	93	.81822	94 24
28	.96427	30.23	61	.90604	62.93	94	.81447	95.20
29	.96305	31.27	62	.90376	63.93	95	.81059	96.16
30	.96181	32.28	63	.90150	64.91	96	.80659	97.13
31	.96057	33.27	64	.89921	65.89	97	.80247	98.09
32	.95924	34.29	65	.89689	66 86	98	.79821	99.05
33	.95791	35.28	66	.89450	67.85	99	.79383	100.02
						100	.78933	100.97

TABLE XXIV—Continued.

Temperature 75°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99615	2.08	34	.95492	37.40	67	.88980	69.77
2	.99472	3.08	35	.95345	38.41	68	.88736	70.75
3	.99328	4.10	36	.95196	39.40	69	.88493	71.71
4	.99184	5.12	37	.95036	40.44	70	.88241	72.71
5	.99040	6.25	38	.94876	41.43	71	.87990	73.69
6	.98907	7.32	39	.94721	42.38	72	.87736	74.67
7	.98777	8.36	40	.94566	43.30	73	.87482	75.64
8	.98649	9.40	41	.94397	44.29	74	.87223	76.62
9	.98519	10.50	42	.94225	45.28	75	.86962	77.60
10	.98391	11.65	43	.94047	46.28	76	.86698	78.57
11	.98271	12.74	44	.93869	47.26	77	.86431	79.55
12	.98153	13.81	45	.93691	48.21	78	.86163	80.51
13	.98034	14.93	46	.93508	49.18	79	.85886	81.50
14	.97915	16.08	47	.93321	50.17	80	.85610	82.47
15	.97800	17.18	48	.93130	51.15	81	.85330	83.44
16	.97686	18.29	49	.92935	52.12	82	.85045	84.42
17	.97572	19.41	50	.92746	53 08	83	.84759	85.39
18	.97458	20.53	51	.92544	54 04	84	.84468	86.36
19	.97340	21.69	52	.92335	55.04	85	.84172	87.31
20	.97220	22.85	53	.92127	56.03	86	.83876	88.25
21	.97100	24.03	54	.91917	57.02	87	.83566	89.22
22	.96981	25.18	55	.91704	58.00	88	.83251	90.17
23	.96872	26.21	56	.91492	58.98	89	.82935	91.11
24	.96762	27.23	57	.91277	59.94	90	.82605	92.08
25	.96652	28.25	58	.91059	60.91	91	.82265	93.08
26	.96533	29.31	59	.90837	61.90	92	.81926	93.97
27	.96413	30.36	60	.90611	62.90	93	.81584	94.85
28	.96293	31.37	61	.90381	63.91	94	.81210	95.79
29	.96166	32.40	62	.90152	64.90	95	.80823	96.73
30	.96038	33.42	63	.89926	65.86	96	.80424	97.68
31	.95910	34.40	64	.89696	66.83	97	.80012	98.62
32	.95773	35.41	65	.89464	67.80	98	.79588	99.57
33	.95634	36.41	66	.89224	68.79	99	.79151	100.51
						100	.78702	101.45

TABLE XXIV—Continued.

Temperature 80°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99547	2.50	34	.95328	38.52	67	.88750	70.69
2	.99402	3.58	35	.95177	39.53	68	.88505	71.66
3	.99257	4.60	36	.95022	40.53	69	.88261	72.63
4	.99112	5.68	37	.94857	41.55	70	.88009	73.62
5	.98967	6.84	38	.94692	42.55	71	.87758	74.59
6	.98831	7.93	39	.94536	43.47	72	.87504	75.56
7	.98701	8.98	40	.94379	44.39	73	.87248	76.53
8	.98571	10.03	41	.94207	45.38	74	.86989	77.50
9	.98440	11.21	42	.94032	46.37	75	.86727	78.47
10	.98310	12.39	43	.93850	47.36	76	.86464	79.43
11	.98188	13.49	44	.93669	48.33	77	.86195	80.40
12	.98067	14.61	45	.93490	49.28	78	.85927	81.35
13	.97945	15.79	46	.93305	50.25	79	.85650	82.33
14	.97824	16.95	47	.93116	51.22	80	.85373	83.29
15	.97706	18.10	48	.92923	52.18	81	.85094	84 25
16	.97589	19.25	49	.92727	53.14	82	.84809	85.22
17	.97472	20.39	50	.92530	54.11	83	.84524	86.18
18	.97355	21.54	51	.92333	55.05	84	.84233	87.12
19	.97232	22.74	52	.92121	56.06	85	.83936	88.06
20	.97106	23.97	53	.91912	57.04	86	.83639	89.00
21	.96980	25.19	54	.91699	58.03	87	.83327	89.95
22	.96856	26.35	55	.91485	59.01	88	.83012	90.88
23	.96745	27.39	56	.91272	59.96	89	.82696	91.81
24	.96633	28.42	57	.91056	60.93	90	.82365	92.78
25	.96522	29.40	58	.90836	61.91	91	.82025	93.71
26	.96400	30.47	59	.90614	62.89	92	.81686	94.59
27	.96276	31.51	60	.90388	63.87	93	.81344	95.46
28	.96151	32.52	61	.90157	64.88	94	.80970	96.38
29	.96021	33.55	62	.89926	65.86	95	.80584	97.30
30	.95890	34.54	63	.89700	66.82	96	.80187	98.22
31	.95758	35.52	64	.89470	67.77	97	.79777	99.15
32	.95616	36.53	65	.89238	68.73	98	.79354	100.08
33	.95474	37.52	66	.88996	69.71	99	.78920	101.00
						100	.78473	101.92

TABLE XXIV—Continued.

Temperature 85°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99467	3.12	34	.95157	39.66	67	.88518	71.61
2	.99321	4.15	35	.95002	40.65	68	.88271	72.59
3	.99175	5.19	36	.94844	41.63	69	.88025	73.56
4	.99029	6.34	37	.94675	42.65	70	.87774	74.53
5	.98883	7.51	38	.94505	43.66	71	.87523	75.49
6	.98748	8.60	39	.94347	44.58	72	.87268	76.45
7	.98616	9.67	40	.94189	45.48	73	.87013	77.41
8	.98484	10.81	41	.94014	46.47	74	.86754	78.37
9	.98352	12.01	42	.93836	47.44	75	.86492	79.32
10	.98221	13.19	43	.93650	48.43	76	.86228	80.28
11	.98097	14.33	44	.93466	49.41	77	.85958	81.24
12	.97973	15.51	45	.93287	50.34	78	.85690	82.19
13	.97849	16.71	46	.93100	51.30	79	.85413	83.16
14	.97724	17.92	47	.92908	52.25	80	.85134	84.12
15	.97603	19.11	48	.92713	53.21	81	.84855	85.07
16	.97483	20.28	49	.92517	54.17	82	.84571	86.03
17	.97364	21.45	50	.92318	55.12	83	.84287	86.95
18	.97244	22.62	51	.92119	56.07	84	.83995	87.87
19	.97116	23.87	52	.91905	57.07	85	.83696	88.82
20	.96984	25.15	53	.91694	58.05	86	.83398	89.73
21	.96852	26.39	54	.91478	59.04	87	.83087	90.66
22	.96723	27.60	55	.91262	60.01	88	.82772	91.59
23	.96611	28.62	56	.91048	60.96	89	.82456	92.52
24	.96499	29.61	57	.90834	61.92	90	.82123	93.45
25	.96386	30.59	58	.90614	62.89	91	.81785	94.34
26	.96260	31.64	59	.90390	63.87	92	.81444	95.21
27	.96132	32.67	60	.90162	64.86	93	.81102	96.06
28	.96004	33.68	61	.89930	65.85	94	.80729	96.96
29	.95870	34.69	62	.89697	66.83	95	.80345	97.86
30	.95736	35.68	63	.89471	67.77	96	.79948	98.77
31	.95600	36.65	64	.89242	68.72	97	.79540	99.66
32	.95454	37.66	65	.89009	69.66	98	.79120	100.57
33	.95308	38.65	66	.88766	70.63	99	.78688	101.48
						100	.78243	102.39

TABLE XXIV—Continued.

Temperature 90°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99377	3.75	34	.94983	40.77	67	.88282	72.55
2	.99231	4.79	35	.94824	41.75	68	.88034	73.52
3	.99084	5.90	36	.94662	42.73	69	.87787	74.48
4	.98937	7.08	37	.94488	43.76	70	.87536	75.44
5	.98790	8.26	38	.94314	44.78	71	.87286	76.38
6	.98653	9.37	39	.94155	45.68	72	.87030	77.34
7	.98519	10.50	40	.93996	46.57	73	.86775	78 29
8	.98387	11.69	41	.93818	47.53	74	.86514	79.24
9	.98254	12.89	42	.93636	48.51	75	.86252	80.19
10	.98121	14.10	43	.93447	49.51	76	.85987	81.14
11	.97995	15.30	44	.93260	50.49	77	.85718	82.09
12	.97868	16.53	45	.93080	51.40	78	.85449	83.03
13	.57742	17 75	46	.92891	52.33	79	.85172	83.99
14	.97616	18.98	47	.92697	53.29	80	.84894	84.93
15	.97492	20.20	48	.92501	54.25	81	.84614	85.88
16	.97370	21.39	49	.92303	55.20	82	.84332	86 80
17	.97247	22.59	50	.92103	56.15	83	.84049	87.70
18	.97124	23.79	51	.91902	57.09	84	.83755	88.63
19	.96991	25.09	52	.91685	58.09	85	.83455	89.56
20	.96853	26.38	53	.91473	59.06	86	.83155	90.46
21	.96716	27.66	54	.91256	60.04	87	.82844	91.37
22	.96582	28.88	55	.91037	61.01	88	.82529	92.30
23	.96469	29.87	56	.90822	61.97	89	.82213	93.21
24	.96356	30.85	57	.90609	62.91	90	.81882	94.09
25	.96243	31.78	58	.90388	63.88	91	.81542	94.96
26	.96114	32.82	59	.90162	64.86	92	.81200	95.82
27	.95983	33.84	60	.89934	65.83	93	.80858	96.65
28	.95851	34.84	61	.89700	66.82	94	.80487	97.53
29	.95714	35.85	62	.89466	67.79	95	.80104	98.41
30	.95577	36.81	63	.89240	68.73	96	.79710	99.30
31	.95438	37.78	64	.89010	69.65	97	.79304	100.18
32	.95288	38.78	65	.88777	70.58	98	.78886	101.07
33	.95138	39.78	66	.88532	71.56	99	.78457	101.95
						100	.78017	102.84

TABLE XXIV—Continued.

Temperature 95°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99280	4.44	34	.94805	41.87	67	.88046	73.47
2	.99132	5.53	35	.94641	42.85	68	.87796	74.44
3	.98983	6.71	36	.94475	43.83	69	.87545	75.40
4	.98835	7.90	37	.94298	44.86	70	.87295	76.35
5	.98687	9.09	38	.94119	45.88	71	.87046	77.28
6	.98548	10.23	39	.93959	46.77	72	.86790	78.24
7	.98413	11.45	40	.93800	47.63	73	.86534	79.17
8	.98279	12.67	41	.93618	48.60	74	.86274	80.12
9	.98145	13.89	42	.93433	49.58	75	.86011	81.06
10	.98011	15.14	43	.93240	50.59	76	.85746	81.99
11	.97883	16.38	44	.93050	51.55	77	.85476	82.94
12	.97754	17.63	45	.92870	52.44	78	.85206	83.87
13	.97625	18.89	46	.92679	53.38	79	.84929	84.81
14	.97497	20.15	47	.92482	54.34	80	.84651	85.76
15	.97371	21.38	48	.92285	55.28	81	.84372	86.67
16	.97246	22.60	49	.92086	56.23	82	.84090	87.57
17	.97121	23.82	50	.91884	57.17	83	.83808	88.47
18	.96996	25.04	51	.91682	58.11	84	.83514	89.38
19	.96858	26.34	52	.91463	59.11	85	.83213	90.29
20	.96716	27.66	53	.91250	60.06	86	.82911	91.18
21	.96573	28.96	54	.91030	61.04	87	.82599	92.09
22	.96434	30.17	55	.90809	62 03	88	.82284	93.02
23	.96320	31.16	56	.90593	62.98	89	.81968	93.86
24	.96207	32.07	57	.90381	63.91	90	.81636	94.72
25	.96094	32.98	58	.90160	64.87	91	.81296	95.58
26	.95962	34.01	59	.89933	65.83	92	.80955	96.41
27	.95828	35.01	60	.89703	66.80	93	.80612	97.24
28	.95693	36.00	61	.89467	67.78	94	.80243	98.09
29	.95553	36.97	62	.89231	68.76	95	.79861	98.96
30	.95413	37.95	63	.89006	69.67	96	.79470	99.82
31	.95272	38.89	64	.88777	70.58	97	.79066	100.69
32	.95118	39.92	65	.88543	71.51	98	.78652	101.55
33	.94964	40.89	66	.88296	72.49	99	.78226	102.42
						100	.77790	103.29

TABLE XXIV—Continued.

Temperature 100°.

True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.	True per cent.	Apparent specific gravity.	Apparent per cent.
1	.99172	5.22	34	.94622	42.96	67	.87806	74.40
2	.99022	6.40	35	.94455	43.95	68	.87553	75.37
3	.98872	7.60	36	.94285	44.94	69	.87301	76.33
4	.98723	8.80	37	.94103	45.97	70	.87053	77.26
5	.98574	10.00	38	.93920	46.99	71	.86804	78.19
6	.98434	11.26	39	.93760	47.85	72	.86549	79.12
7	.98299	12.49	40	.93600	48.70	73	.86292	80.05
8	.98163	13.72	41	.93415	49.67	74	.86031	80.99
9	.98028	14.98	42	.93227	50.66	75	.85768	81.91
10	.97892	16.30	43	.93030	51.65	76	.85502	82.85
11	.97761	17.56	44	.92837	52.60	77	.85231	83.78
12	.97630	18.84	45	.92657	53.49	78	.84962	84.70
13	.97499	20.13	46	.92464	54.42	79	.84685	85.64
14	.97369	21.40	47	.92266	55.38	80	.84407	86.56
15	.97241	22.65	48	.92067	56.31	81	.84128	87.45
16	.97113	23.90	49	.91866	57.26	82	.83847	88.34
17	.96987	25.12	50	.91663	58.19	83	.83567	89.22
18	.96860	26.32	51	.91460	59.12	84	.83272	90.11
19	.96718	27.64	52	.91239	60.11	85	.82969	91.01
20	.96569	28.99	53	.91024	61.07	86	.82666	91.90
21	.96421	30.29	54	.90802	62.06	87	.82352	92.82
22	.96277	31.50	55	.90578	63.05	88	.82037	93.68
23	.96165	32.41	56	.90363	63.99	89	.81721	94.50
24	.96052	33.31	57	.90150	64.91	90	.81390	95.34
25	.95938	34.19	58	.89938	65.81	91	.81049	96.19
26	.95804	35.18	59	.89700	66.82	92	.80708	97.01
27	.95666	36.19	60	.89469	67.78	93	.80364	97.82
28	.95528	37.15	61	.89232	68.76	94	.79996	98.66
29	.95387	38.13	62	.88994	69.72	95	.79617	99.50
30	.95244	39.08	63	.88770	70.61	96	.79228	100.35
31	.95100	40.04	64	.88541	71.52	97	.78828	101.19
32	.94943	41.02	65	.88306	72.45	98	.78416	102.04
33	.94785	41.99	66	.88058	73.43	99	.77994	102.89
						100	.77563	103.73

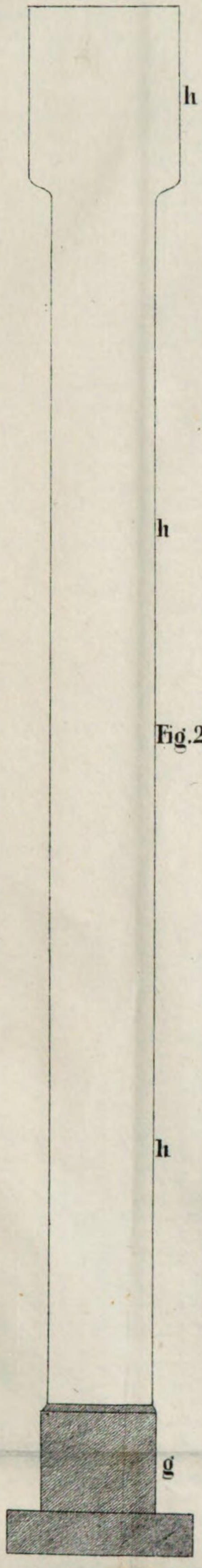
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Fig. 2.

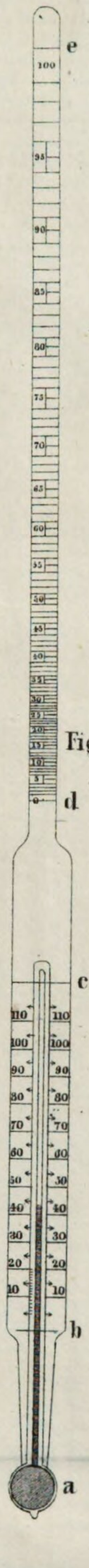
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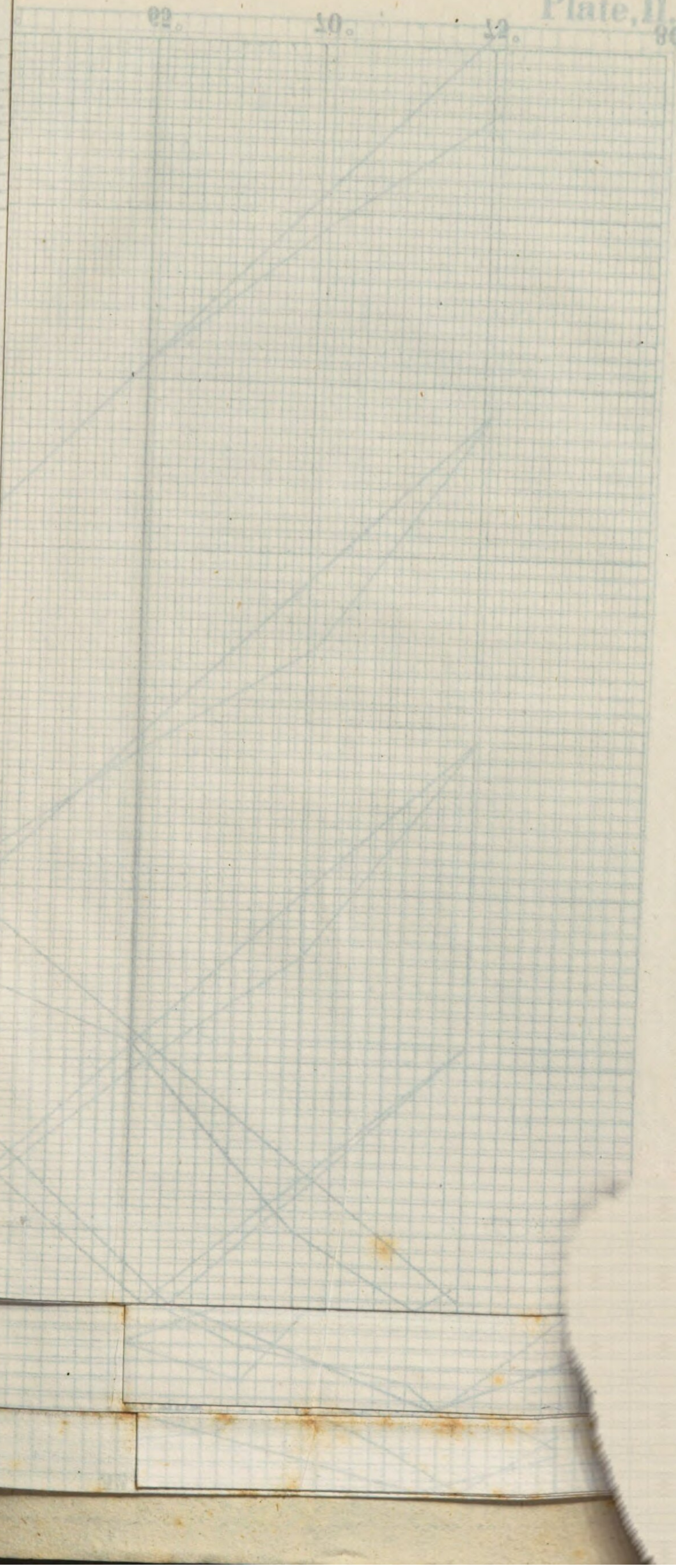
Fig. 1.

Plate, II.

,III.



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